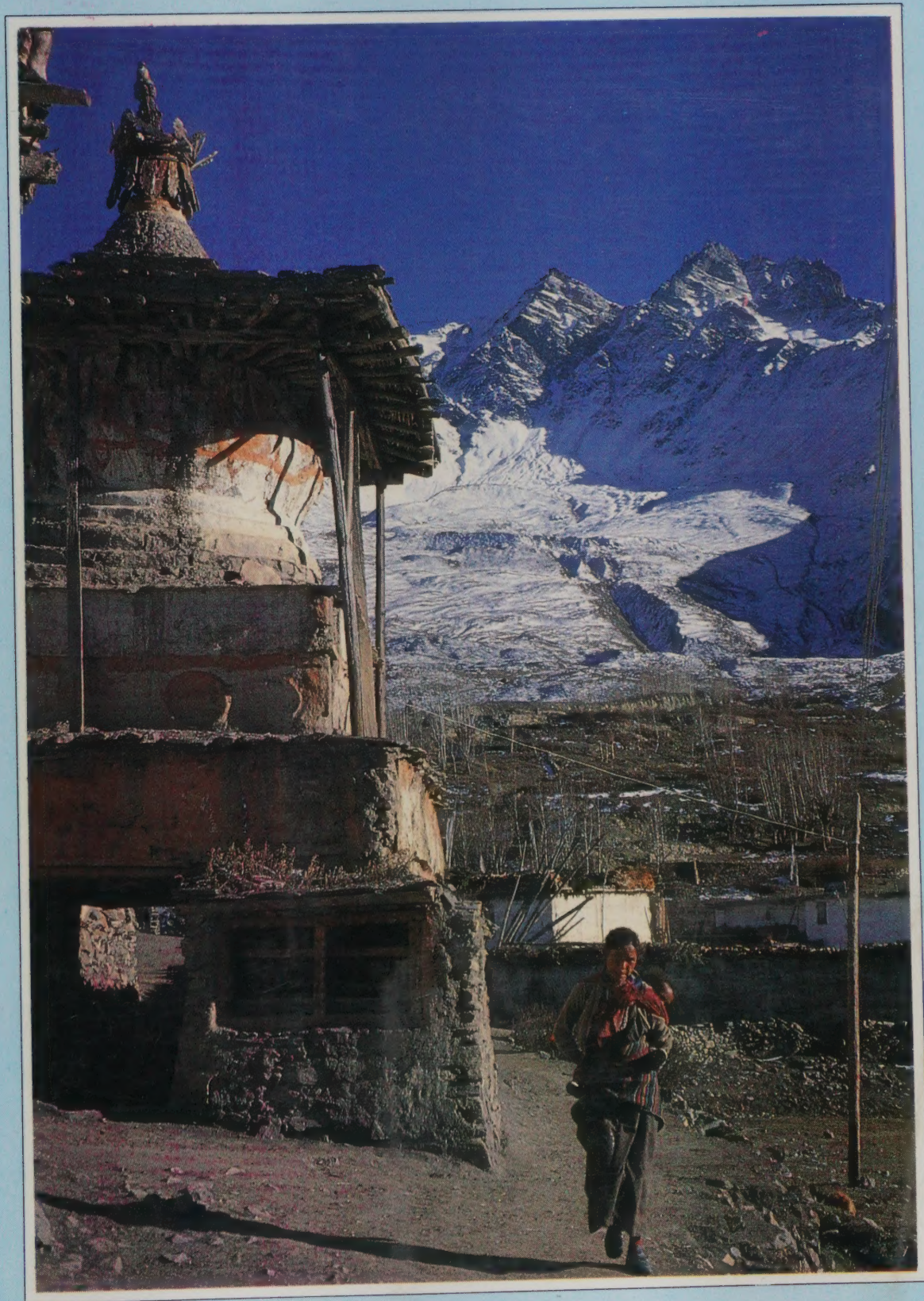


Status of Health in Nepal



**Resource Centre for Primary Health Care, Nepal
and South-South Solidarity**

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Status of Health in Nepal

by
Almas Ali

**Resource Centre for Primary Health Care, Nepal
and
South-South Solidarity, India**

July 1991

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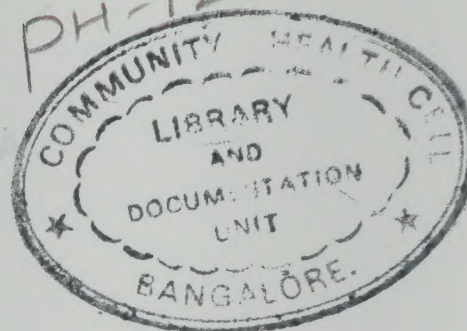
Price:

\$ 10

300 Nepali Rupees.

3600

PH-120



Cover design : Stephen Marazzi and Design & Print

Cover Transparency : Padam Khanna

Graphs : MICRON Computers

Production : Design & Print

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Preface and Acknowledgments

The main objective of this document was to provide a broad framework for discussion on the status of health in Nepal at the National Workshop on "Status of Health and the Role of Non-Government Organisations (NGOs) in Primary Health Care", organised jointly by the Ministry of Health, His Majesty's Government (HMG), Nepal and the Resource Centre for Primary Health Care, Nepal, in December 1990 at Kathmandu.

Starting with a brief discussion on the inter-relationship between the health status of a population and the socio-economic development of the country, the introductory chapter of this document provides an overview of the state of social deprivation in Nepal, sets out the magnitude of the health problems both in terms of enormity and complexity, and discusses the policy issues on health and the possibilities of meaningfully involving NGOs under the changed political situation to effectively address Nepal's health problems. The next chapter provides background information on Nepal and a comprehensive list of more than 100 selected health and socio-economic indicators prepared on the basis of the latest available information. Chapter 3 focuses in depth on the current status of health in the country by analysing mortality, morbidity and disability. The next chapter provides an overview of the problem of nutrition in the country. Chapter 5 presents detailed data on the health service delivery system (including the organisational set-up, infrastructure, personpower, budget, etc.), and issues pertaining to health care delivery (effectiveness, efficiency, integration, decentralisation, including an in-depth critique of the current status of implementation of health care programmes at the peripheral level). The last

chapter concludes this document with a discussion on the action areas for NGOs in the field of health.

South-South Solidarity (SSS), New Delhi, commissioned the preparation of this document and the work was carried out under the auspices of the Resource Centre for Primary Health Care, Nepal. I am grateful to Mr Alok Mukhopadhyay and Ms Jill Carr-Harris of South-South Solidarity for giving me the opportunity to undertake this assignment. I also acknowledge their valuable support and personal interest and enthusiasm towards this study. I would like to express my sincere thanks to all the members of the Resource Centre for Primary Health Care, Nepal, in particular to Professor Mathura Shrestha, Mr Shanta Lall Mulmi, Mr Mahesh Sharma, Dr Arjun Karki, Dr Mahesh Maskey and Dr Buddha Basnyat. I deeply appreciate the courtesy and support they extended to me throughout my stay in Nepal and during the course of this study. Thanks are also due to Omita Goel, Manju Gupta, Sangeeta Agrawal and Poonam Krishnan for shaping this publication.

I have had the benefit of detailed discussions with leading health administrators, policy-makers and planners of agencies of His Majesty's Government of Nepal, as well as the professionals and social activists of bilateral agencies and NGOs (both international and local). The document is based on these discussions and on the several publications and mimeographed reports which were graciously made available to me by the Ministry of Health, WHO, World Bank, UNICEF and other NGOs. I take this opportunity to thank all of them.

Almas Ali

Resource Centre for Primary Health Care

The Resource Centre for Primary Health Care is a non-profit, non-governmental organisation registered with the Government of Nepal. Being committed to help realise the goal of 'Health for All' for the people of Nepal, it primarily assumes the facilitatory roles in the area of primary health care in the country. Specifically speaking, it envisages to fulfil these roles by building a sound health information/documentation system, providing educational support for the grass-root primary health care workers and enhancing public awareness about health and health related issues so as to achieve informed participation and empowerment of the people in the true sense of the word.

South-South Solidarity

South-South Solidarity is working towards research, development information exchange and networking among the South countries on various issues falling within the broader context of sustainable development. As a developing movement, South-South Solidarity recognizes the need to strengthen cooperation and respond to the structural crisis between the North and South. The thrust is to sensitise people across the borders to share similarities of problems and promote inter-regional programmes and understanding. In the course of South-South Solidarity's activities many channels for cooperation between NGOs in several African and South Asian states on a policy and programme level are being forged to evolve a more innovative approach to development.

Publisher's Note

It is a great pleasure for us here in South-South Solidarity and the Resource Centre for Primary Health Care to publish jointly this comprehensive analysis on the 'Status of Health in Nepal'. It is a modest effort on our part to gauge the status of our population's health and will prove to be of immense value in laying our strategic action and national agenda in the future.

We in South-South Solidarity have had the pleasure of witnessing the development of the Resource Centre from an infant stage to a Centre which boasts of being able to meet some of the nation's most urgent priorities through information dissemination and training. We would like to congratulate all those who have responded to this bold initiative. As for the Resource Centre, it is the first major effort to publish a valuable document that might prove useful to researchers and students. For this, it would like to thank South-South Solidarity for the financial and moral support extended to it in the last two years. Our special thanks go to Dr Almas Ali of South-South Solidarity whose laborious research efforts made this report possible. The advice provided by Mr Alok Mukhopadhyay, also affiliated to South-South Solidarity, has been of immense value.

This being our first attempt to bring out such a document, there is scope for improvement but, more than changing the 'first print' we hope it can inspire alternative community health programmes in the field.

Foreword

I was happy to read this excellent document on *Status of Health in Nepal* by Dr Almas Ali. This report will serve as important reference material for the decision-makers and managers in governmental and non-governmental sectors to plan and accelerate the health service development processes in the changed political context in Nepal, where people's power is guaranteed constitutionally by vesting sovereignty in the hands of the people themselves. This will help them and the people to break away from the authoritarian psychology prevailing in the old political system in Nepal which was designed for the benefit of a very small minority, and to move to work with the people to democratise the health services and to empower the people to take initiatives so that an appropriate health services system with sufficient pluralism is developed in order to solve the problems of:

- access to the health services for all, especially for the poorest of the poor, the underprivileged, deprived population;
- conscious participation of people in the planning and management of the health care system;
- restructuring health services to increase effectiveness and efficiency and to be more responsive to human health and development problems;
- adequate and appropriate manpower development;
- decentralisation and integration;
- political, social and economic commitment for health and education as a precondition of development;
- quality assurance and standardisation to do away with medical or pharmaceutical counterfeiting and swindling by demystifying health and education or by adequate health education and empowerment;

- appropriate monitoring and evaluation system with self-correcting mechanism and with commitment to public accountability;
- sustainability of health system in economic, social and ecological terms.

Health is both the right and responsibility of the people. People's assertion of the right to health is an expression of the quality of life in any given country, time and situation. Their expression of the responsibility on health is the indication of the level of their participation in the social and political affairs of any country. People delegate their responsibility on health and other social indicators to the political and administrative machinery. In Nepal too, health professionals in the governmental, non-governmental and private sectors should take up the challenge of developing services as well as serving the people. Science and technology are developed to serve the people. Health cannot be an exception.

The health status of any country is interlinked with the social, economic and cultural development of a country. But health is both a determinant and a byproduct of any such development. Health is therefore a priority. The health sector in Nepal needs to have a more active, need-oriented, demanding and problem-solving approach to attract more investments in economic, social and political terms. Health professionals have to take a lead towards it.

Health professionals, however, should not only help people in their effort to liberate themselves but they should also make a serious endeavour to cast off their ignorance and narrow-mindedness to help develop Nepal's health services in a broader perspective. I hope this report will contribute significantly towards this.

Prof. Mathura P. Shrestha
Minister of Health

1.

Introduction

Health Status and Socio-Economic Development

The health status of a population is but a reflection of the socio-economic development of the country and is shaped by a variety of factors — the level of income and standard of living, housing, sanitation, water supply, education, employment, health consciousness, personal hygiene, and by the coverage, accessibility and affordability of health care delivery services. Therefore, it is widely accepted that the poor health status of low-income countries is the product of inadequate nutrition, lack of a protected water supply, and overcrowded and insanitary housing conditions. These conditions are conducive to the prevalence of deficiency diseases, air-borne diseases, and faecally related and water-borne diseases which dominate the morbidity pattern in less developed countries. In brief, these diseases arise from a set of conditions which in themselves represent poverty and deprivation. They are, by and large, infectious/communicable diseases, and are preventable. It is also part of conventional wisdom that the initial rise in the health standards of West Europe and North America was more the result of improvements in nutrition, housing, water supply and sanitation than advances in curative medical care which came much later. The historical experience of the developed countries as well as the nature and causes of the dominant diseases in today's developing/underdeveloped countries have led to a general consensus that any improvement in general health in the latter countries would hinge upon overall economic and social development making a perceptible dent on the genesis of disease.

Social Deprivation in Nepal

Both in comparative as well as absolute terms, Nepal is one of the world's poorest countries. The

latest World Development Report (WDR) of 1990 lists only eight countries with GNP per capita lower than that of Nepal, which is credited with US \$ 180 (1988) per capita. Of these, four (Zaire, Somalia, Malawi and Bangladesh) have a GNP per capita of \$ 170 and two (Tanzania and Chad) have \$ 160 per capita GNP. (These are well within the margin of error with which national accounts at such low development levels are measured and recorded.) Only two countries, i.e., Mozambique with a GNP per capita of \$ 100 and Ethiopia at \$ 120, are non-marginally poor. Nepal, then, is one of the poorest countries in the world.

Most of the people of Nepal live in conditions of extreme poverty and social deprivation. As this poverty is largely rural¹ and exists amidst a spectacular mountain landscape,² it is obscured from the casual observer and for this reason, perhaps, the extent of deprivation in Nepal is often underestimated. Nepal does not share the reputation of Bangladesh or some of the countries of Sub-Saharan Africa, for instance, in terms of grinding and pervasive poverty. Nonetheless, the fact remains that even by the most conservative definition,³ about 8 million of Nepal's current population of about 19 million live in absolute poverty; the average income (in cash and kind) is only about Rs 8 per day; more than half the population lives at or just above starvation level without being able

¹ Nepal lacks the large urban population centres with highly visible urban poverty and deprivation as is found in many neighbouring countries of South Asia. Over 95 per cent of the absolute poor in Nepal are concentrated in the rural areas.

² The incidence of poverty is twice as high in the hills and mountains than in the Terai plains.

³ The poverty line is defined by the National Planning Commission (NPC) on the basis of income needed to supply minimum calorie requirements (estimated in Nepal at 2,250 calories per day). At 1988-89 prices, this was Rs 210 per person per month in the hills and Rs 197 in the Terai.

to feed themselves adequately; nearly one-fifth of all children die before the age of 5, and for those who live, malnutrition, chronic illness and disability are continuing facts of life.

The very low estimate of GNP per capita contained in the World Development Report of 1990 is reinforced by closer analysis of other data sources, both economic and social.

In order to understand the extent of poverty and social deprivation in Nepal in a comparative context, it is imperative to compare some of the key economic and social indicators with a few of the world's poorest countries (selected) and some neighbouring countries (selected) in Asia.

Estimates of GNP per capita and other economic indicators are shown in Figure 1.1 for selected countries (both very poor and neighbouring Asian countries). Nepal's per capita income is not only low but it has not been improving, with GNP per capita growth over the period 1965 to 1988 increasing at an average rate of 0.5 per cent a year. In contrast, low-income countries (excluding China and India) grew at 1.5 per cent a year, while low-income countries as a group (including both China and India) and middle-income countries achieved a per capita growth rate of 3.1 and 2.3 per cent a year, respectively, over the same period.

The low level of GNP per capita of US \$ 180 (1988) is reflected in other comparative economic indicators as well. Nepal exhibits many of the characteristics of Sub-Saharan African economies, including a limited productive land base, a land-locked location, and a very low level of exports. As seen from the same Figure, Nepal's share of agriculture in GDP, one of the best summary indicators of the level of development and structural change, is at 56 per cent (second highest amongst the comparable countries, next only to Tanzania at 66 per cent). It is also higher than all but four of the poorest countries of the world, namely, Uganda (72 per cent), Tanzania (66 per cent), Somalia (65 per cent) and Mozambique (62 per cent) — (WDR, 1990). Following Nepal, Mali and Bangladesh, standing between 45 to 50 per cent, have the next highest share. The average share of agriculture in low- and middle-income countries on the other hand is 33 and 12 per cent, respectively. In contrast to agriculture, Nepal's share of industry is far lower (17 per cent) than the neighbouring Asian countries. Again, the share of the labour force dependent on agriculture (93 per cent) is the highest in the world. This data is supported by the fact that Nepal

is also one of the three lowest consumers, per capita, of commercial energy — a sensitive indicator of industrial and urban development. The annual consumption of oil equivalent in Nepal is 23 kg as compared to 322 kg in low-income and 1,086 kg in middle-income countries.

The low level of development in Nepal revealed by the economic indicators is also reflected in the comparative social indicators shown in Figure 1.2, which once again reflect a position similar to Sub-Saharan Africa.

Life expectancy at birth is among the lowest (it is lower than Nepal in only 18 countries), and the infant mortality rate is among the highest in the world (there are only 15 countries in which a child's chances of surviving the first year of life are worse than in Nepal). Life expectancy at birth (51 years) is much lower, and the IMR (at 126) is much higher for Nepal than for low-income countries as a group, where life expectancy is 60 years and the IMR 72 per 1,000 live births. In terms of food availability as well — measured in terms of calories per capita — only Bangladesh and a few Sub-Saharan African countries are in a worse condition than Nepal.

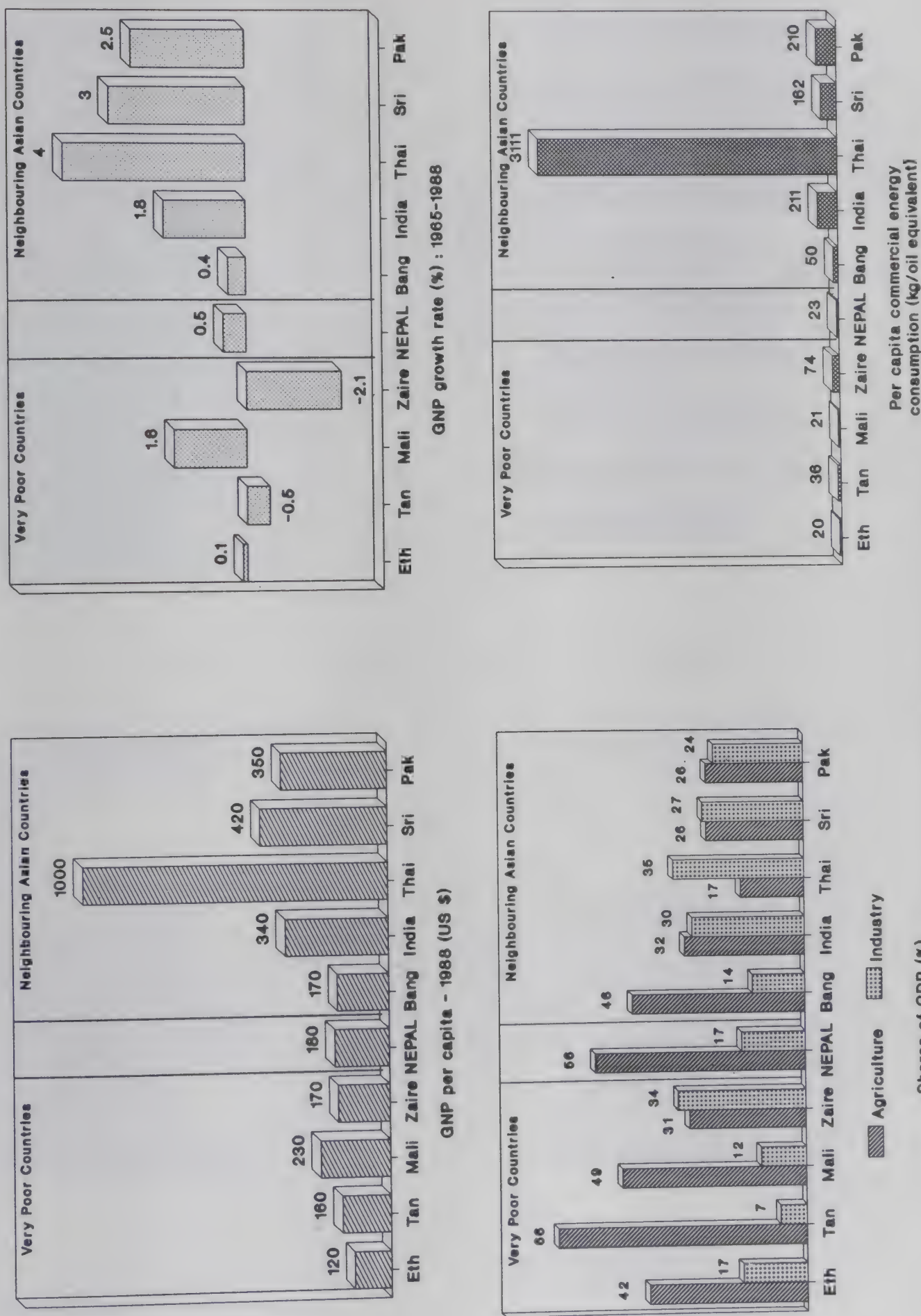
The problem of poverty in Nepal is principally that of an aggregate shortage of resources. This manifests itself as extensive personal poverty with over 42 per cent of the population living below the poverty line (as defined by the NPC).⁴ If the minimum income level is raised to US \$ 150 per capita per year as a yardstick (not an unreasonable level), about 70 per cent of the population would fall below the poverty line. Is it not staggering that over 70 per cent of the population of Nepal (almost 80 per cent in the hills) is struggling to survive on less than US \$ 150 a year. In terms of the broader measures of well-being as well, the situation is much the same. As mentioned, life expectancy in Nepal is 51 years while in Japan it is almost 80; mortality among children under 5 years exceeds 165 deaths per thousand, while in Sweden it is fewer than 10; more than 88 per cent of females in Nepal are illiterate, while in almost all developed countries female illiteracy is less than 5 per cent. These stark contrasts attest to the continuing toll of human deprivation in Nepal.

Nepal's poverty has resulted in tremendous human suffering and wasted potential. For example, about 6 per cent of the country's population is estimated to suffer from some degree of mental

⁴ See footnote 3.

Figure 1.1

Comparative Economic Indicators - Selected Countries

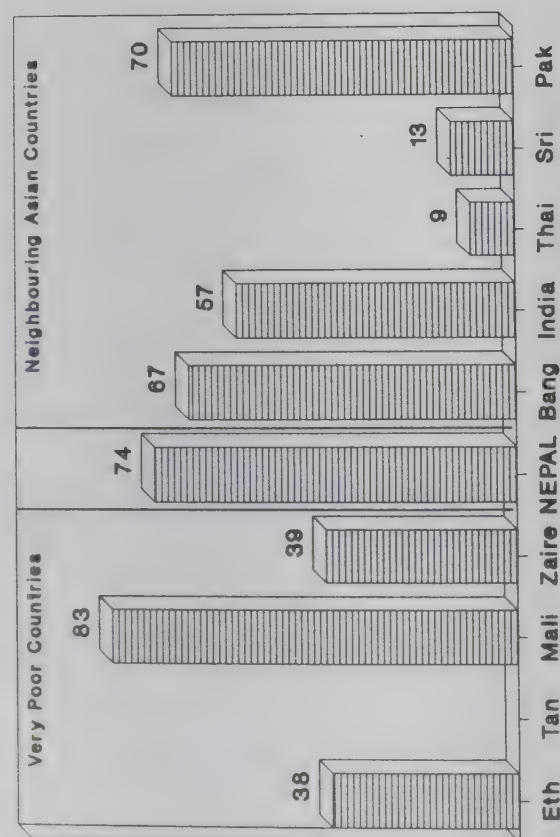


Eth = Ethiopia Tan = Tanzania Bang = Bangladesh Thai = Thailand Sri = Sri Lanka Pak = Pakistan

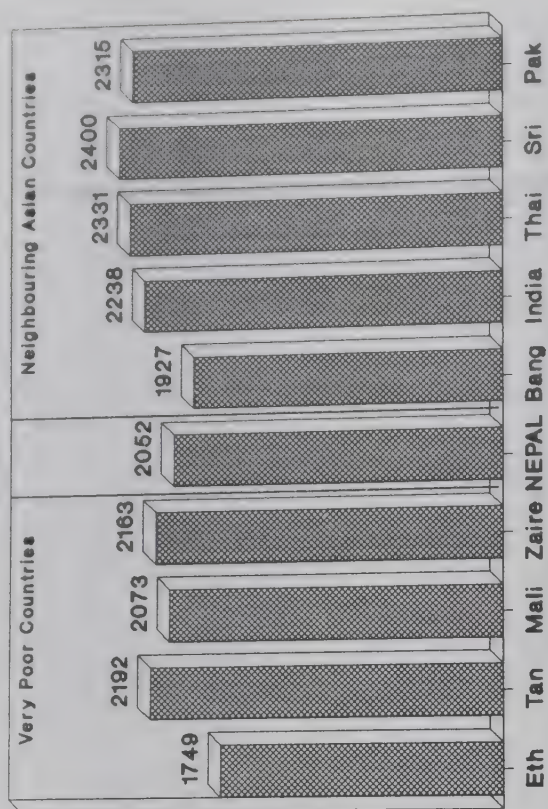
Source : Compiled from World Development Report, 1990.

Figure 1.2

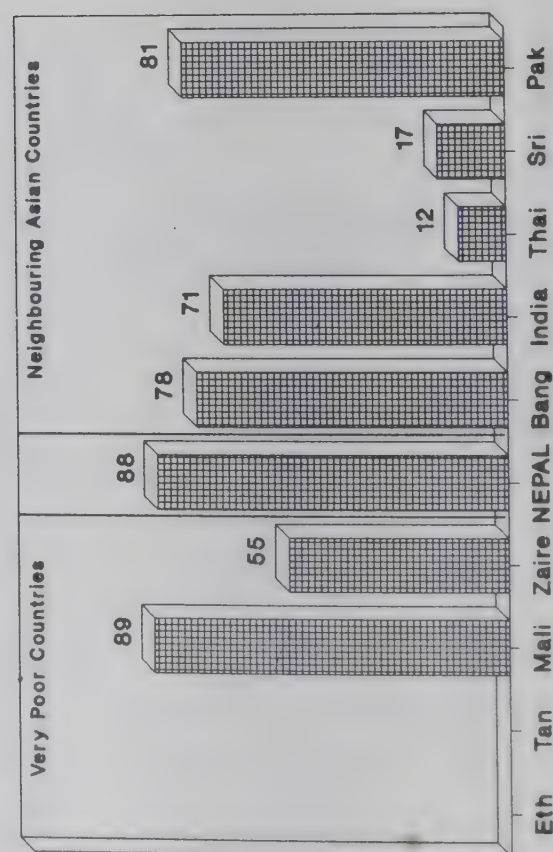
Comparative Social Indicators - Selected Countries



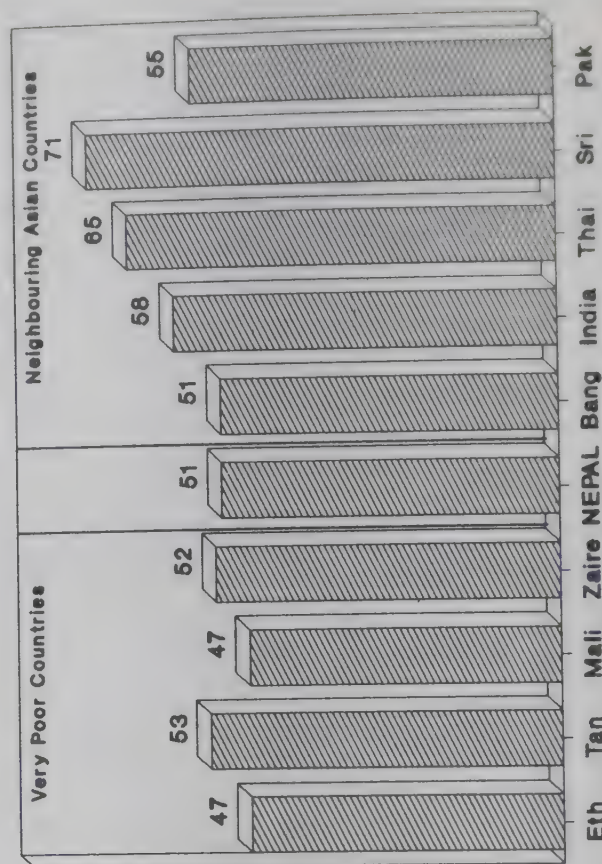
Illiteracy (%) - 1985
Figures for Tanzania not available



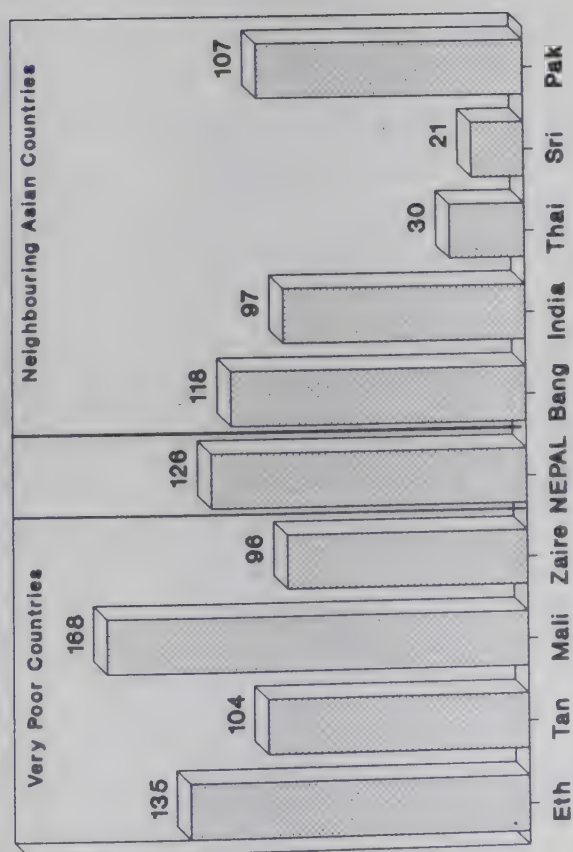
Calorie availability
(per capita per day) - 1986



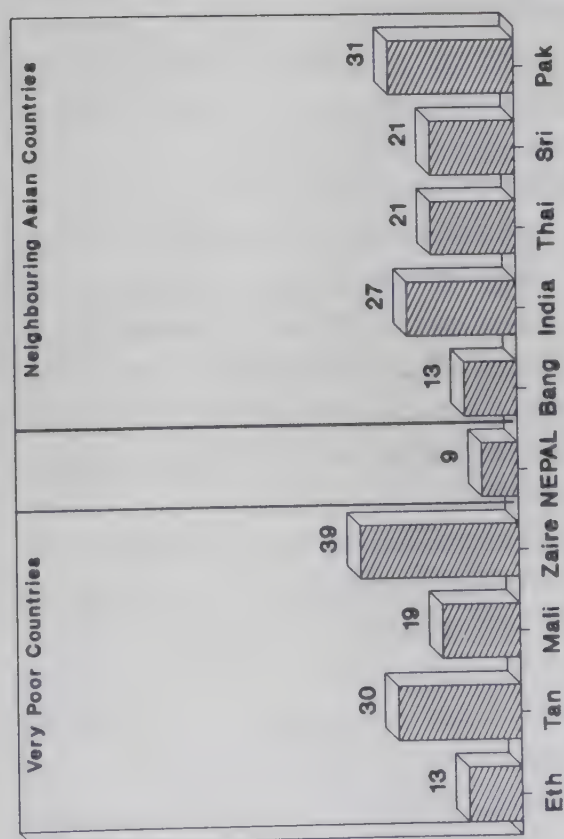
Female illiteracy (%) - 1985
Figures not available for
Ethiopia & Tanzania



Life expectancy (years) - 1988

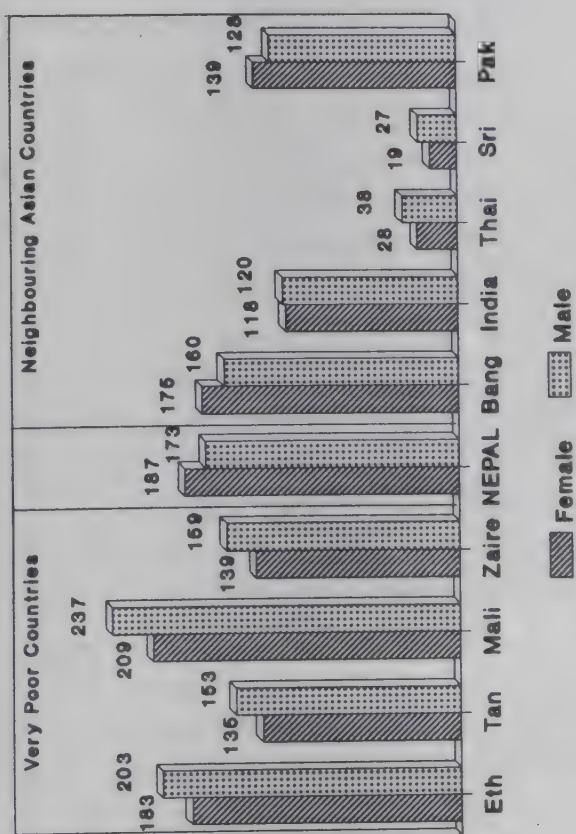


Infant mortality rate (per 1000 live births) - 1988



Urban population as % of total population - 1988

Source : Compiled from World Development Report, 1990. For consistency of inter-country comparisons, all data are drawn from this single source.



Under 5 Mortality - 1985

Eth	=	Ethiopia
Tan	=	Tanzania
Bang	=	Bangladesh
Thai	=	Thailand
Sri	=	Sri Lanka
Pak	=	Pakistan

retardation, due mainly to malnutrition and iodine deficiency. Again, less than 30 per cent of the population has normal nutritional levels. Associated with nutritional and deficiency diseases, there are estimated to be over 3 lakh cases of blindness in Nepal. Roundworm and hookworm infestations are widespread; according to some reports, 70 to 80 per cent of the population at any given time is infected with intestinal parasites, which further reduces the effect of already low levels of calorie intake from cereals.

Thus, both the economic and social indicators reinforce GNP per capita data. Nepal is among the poorest and least developed countries, one which is dependent upon a sparse and ecologically threatened agricultural base. Almost all indicators of social deprivation place Nepal among the lowest not only in the world but in Asia as well.

While most Nepalis are uniformly poor by international standards, some local studies point to large perceived disparities between the poor and the wealthy at the village level. This is so for two reasons: first, the distribution of assets is more obviously skewed than the distribution of income, and second, because at the margins of survival, small absolute differences in income (of about US \$ 50 per capita per annum) make the difference between near-constant hunger and a moderately comfortable surplus.

Distinct discontinuities exist between groups as well. In the hills the distinction is often between those producing surplus food and those producing less than about six months' supply. In the Terai, it is between the landlords, landowners and tenants at the top, and the landless at the bottom rung. With respect to location too, those in the valleys are well-off, those on the slopes and ridges less so, and those in more remote areas are usually the poorest, with the exception of some mountain groups traditionally dependent on trading.

Across all ethnic groups and regions, there is a common distrust of civil servants, local politicians and landlords, who are seen by the rural poor as a homogenous group with little in common with the rural poor. This distrust, the poor reach of public services, particularly health and nutrition interventions in rural areas, and the lack of communication between officials and illiterate peasants, have resulted in a wide gulf between the rural poor on the one hand, and the local political process and government services on the other.

Magnitude of Health Problems

No doubt the mortality rates⁵ in Nepal have declined over the years and many more people survive today. Yet, diseases are rampant: diarrhoeal and parasitic diseases afflict 70 to 80 per cent of the population; upper respiratory infections and the complications of pregnancy and childbirth are other causes of morbidity; the country has the second highest incidence of iodine deficiency disorders in the world with up to 70 to 80 per cent of the population in some pockets suffering from goitre (56.7 per cent mean prevalence rate of goitre); and with cretinism rates as high as 10 to 12 per cent in some remote areas. An estimated 3 lakh people in Nepal are partially blind and perhaps about 15 per cent of the population suffers from tuberculosis. This also holds for both contagious and non-contagious forms of leprosy. Although the incidence of malaria had decreased substantially by the 1970s, there has been a resurgence aggravated by insufficient spraying, ecological change and increased migration. As already mentioned, chronic undernutrition affects over 50 per cent of children with clinical malnutrition rates of up to 15 per cent. About 45 to 50 per cent of children under 6 years are stunted. To a large extent the root causes of ill-health in Nepal lie in widespread and extreme poverty and associated lack of infrastructure. A safe drinking water supply is virtually non-existent in Nepal and sanitary methods of excreta disposal uncommon. Shelters are generally poor and heavily overcrowded in urban areas, limiting the scope of personal and domestic hygiene and fostering the spread of diseases.

Although there is no data on health status by income level, it is almost certain that the poor are the worst off because their lower nutritional status leaves them more susceptible to diseases, and because they are least likely to have access to the health services now available. With continuing malnutrition and illness among the poor families, it is almost certain that at least one or two children die from the consequences of malnutrition (there is, however, no data to support this assumption). While health status is universally poor in Nepal due

⁵ Although it is believed that the mortality rate (including IMR and U-5MR) has declined, it will not be an exaggeration to say that the real estimates of IMR and neonatal mortality and their break-up in terms of districts, unserved/underserved areas, underprivileged/poorest groups are not known.

to the poor coverage of health services, contaminated water supply and poor hygiene, it may not be income related alone. However, the poor in Nepal definitely exhibit characteristics which make them, on average, less likely to be healthy: they are more likely to suffer from undernutrition, less likely to have access to water supply, sanitation and health services. This is because notwithstanding the many facets of poverty, the poor are those who, by prevailing standards, are found to be deficient both in terms of the means of subsistence and privileges of life.

The present health scenario of Nepal is thus very bleak, and the health and nutrition status of its people can only be described as extremely poor. It can be said without exaggeration that at any given time almost everyone in Nepal is either ill or imminently at risk of a major health problem.

Health Care Delivery

While the health care delivery system in Nepal has expanded significantly over the last 25 years, most people still do not get the benefits of the existing health services. This is so for several reasons: because it is not accessible to them, because they cannot afford to use them for economic reasons, because they do not have adequate information about them, or because they do not believe that these services can help them. Essentially, the health delivery system at the peripheral level is still at a very rudimentary level and reaches very few, let alone the poor. According to the latest available sources, there are only 879 physicians in the country. The health infrastructure is also severely underdeveloped in most parts; people walk for several hours (in some cases even several days) to the nearest health post which often lacks both staff and supplies. Thus, the system itself is plagued by a range of institutional and service delivery weaknesses. The composition of expenditure within health is biased (both geographically and by type of care) in favour of those who are better off. The poor are denied access to health services because of the cost and the inherent weaknesses of the health care system itself. It is estimated that only 10 to 15 per cent of the total population has access to these services, and that too, mostly the urban folk.

Health Policy Framework

From 1975, Nepal's health policy was directed towards providing minimum services to the maxi-

mum number of people. The government's 1987 document on Basic Minimum Needs focuses on the provision of health services as part of an effort to achieve the minimum Asian standards of living for all by the year 2000 AD. Although this document does not really reflect any policy change, it gives higher priority to a set of policies which was in danger of losing momentum. This document makes these needs more specific and outlines a time-frame for their fulfilment. The policy document also refers specifically to such health related issues as food, nutrition, housing, education and water supply. Thus, it incorporates almost all the feasible components outlined in the historic Alma Ata Declaration of 1978 and is more or less a primary health care policy.

In the 1980s, His Majesty's Government (HMG) of Nepal was preoccupied with the themes of decentralisation and integration as an appropriate policy response to the country's health care delivery system. The main emphasis was on the need to decentralise both at the planning stage (in order to increase local involvement) and management level, and to integrate vertical programmes (in order to increase the coverage, effectiveness and efficiency of health care delivery).

In short, the government's policy was very clear in its support of primary health care and the need for a multisectoral approach to achieve health for all by 2000 AD. Paradoxically enough, despite encouraging policy statements, empirical observations suggest that health does not in fact enjoy priority. Moreover, the existing broad and general plans to implement these policies do not always translate into feasible strategies or realistic programmes and do not necessarily address the difficulties of programme implementation. Instead, they concentrate only on the quantitative or target approach with little or no attention to how these targets can be met.

Further, while emphasis in the strategy of the government is no doubt on primary health care and delivery of basic preventive services with the help of paramedical staff at the village level, in practice the allocation of resources is skewed in favour of curative, hospital based services, and the majority of personnel and financial resources are concentrated in the Kathmandu valley.

Health infrastructure is still underdeveloped and lacking in funds. The number of doctors is very few, health posts often do not operate or are found wanting in drugs and other supplies, and the

conditions in the hospitals (which are often no more than larger health posts) are often appalling. But the greatest problem afflicting the health sector involves the management of delivery of services at the field level at the periphery. Management and personnel operations are weak throughout the sector, with the result that many posts are vacant and paramedical staff at the periphery seldom leave their posts to deliver health services. These problems are compounded by difficult terrain and communication facilities, a shortage of medical personnel, and the virtual absence of female health workers.

Although integration of services has supposedly been completed, the vertical programmes remain largely independent, with their own budgets, staff and bureaucratic compulsions. The process of integration of the vertical staff remains unresolved and the Ministry of Health is in a state of almost continuous reorganisation. This results in uncertainty with respect to the future of the programme staff and insufficient reorientation of management structures for true integration.

Health for All and Role of NGOs

As we know, Nepal is a signatory to the historic Alma Ata Declaration and it is committed to the attainment of the goal of 'Health for All' by the year 2000 through the primary health care approach. Today, thirteen years after the declaration, while most countries have made considerable progress in increasing the equity and effectiveness of health services and in improving the health and well-being of their populations, Nepal has made only very limited progress, its health indicators being among the worst in Asia.

The international experience in general and experiences in some of the neighbouring countries of Asia have shown that those countries which have made a positive discernible impact on health indicators took up the gauntlet at Alma Ata with optimism by developing new initiatives, and, most importantly, establishing a close working relationship between the non-government organisations (NGOs) and the government sector at all levels. Interestingly, the countries which recorded creditable achievements in the field of primary health care were also those where NGOs had become intimately involved in the movement for health for all.

It has also been recognised that NGOs are indispensable allies in the delivery of primary health

care, not only because they supplement government resources but also because there is much to be learnt from their experiences, expertise and innovative ventures. Moreover, NGOs have considerable advantage over the public sector because of their personalised approach, motivation, necessary zeal, sympathy for the deprived sections, responsiveness to the people's needs, creativity, and above all, the flexibility to experiment with innovative and alternative approaches in order to solve health problems.

Experiences from other parts of the world including India and Bangladesh have also demonstrated that NGOs can assist in providing people with information, technical support and decision-making possibilities, which could enable them to share in opportunities and responsibilities for action in the interest of their own health.

The Future Role of NGOs in Health Care Delivery under the Changed Political Situation

In Nepal today, such a desired partnership between the government and NGOs in delivery of primary health care is unfortunately virtually at an embryonic stage as compared to its neighbouring countries, and this is perhaps one of the most crucial as well as challenging areas of concern for the 1990s.

Although there are a large number of international agencies active in Nepal, the local NGO sector is still in a fledgling state. While there are several traditional indigenous self-help groups and community service organisations, Nepal does not have the range of local developmental NGOs as is found in the neighbouring countries. Local NGOs involved in the health sector are fewer still.

NGO activities in Nepal are governed by the Social Service National Coordinating Council (SSNCC), through which both funds and approval for NGO activities are channelled. While the SSNCC plays a central monitoring and coordinating role, it is also an agent of control. This reflects a legitimate concern to prevent a plethora of agencies (many of them foreign) operating in the countryside unpoliced, but it may also limit the effectiveness and flexibility of NGOs.

There is a widespread perception that at least until very recently, the political system operated for the benefit of a very small minority. The move towards decentralisation and greater participatory approaches over the last five years represent

changes in the right direction. The more recent and dramatic changes which have taken place in the political situation of Nepal since February 1990, particularly the introduction of multiparty democracy and the more recent promulgation of the Constitution on 9 November, 1990, appear to reflect an acceleration of this trend.

Until recently, the government's attitude towards NGOs was ambivalent. Now, under the changed political scenario, the government has also begun to appreciate the potential of the NGO sector, particularly the local NGOs. The Basic Minimum Needs document acknowledges that NGOs have an important role to play in the delivery of health care in Nepal.

The changes within the government have resulted in a review of the role of the SSNCC. The Queen resigned as the Chairperson of the SSNCC during this period and the Minister of Social Services took over as Chairman and appointed a task force to examine the role of the Council. The report of the findings will be available shortly. This

appears to be an opportune time to revamp the framework for NGO coordination, especially if NGOs are to play the active role prescribed for them under the Basic Minimum Needs programme for achieving the goal of health for all. It will be worthwhile, therefore, to undertake a thorough review of the rules and regulatory framework for NGOs, taking into account the experiences in other neighbouring countries where NGOs have made a tangible contribution in the field of health and development.

Now, under the present political scenario, the links between the government agencies and the local NGOs can be effectively strengthened; the government can now play a more active, aggressive and positive role in supporting new initiatives in the areas of meaningful collaboration and coordination between the government and local NGOs; and in pursuing realistic and appropriate health intervention measures which are required to ensure that the poor and the underprivileged specifically benefit from them.

2.

Nepal — Background Information

Nepal is a land-locked country situated on the southern slopes of the Himalayas between 26°-22' and 30°-27' north latitudes and 80°-4' and 88°-12' east longitudes. Extending from east to west, Nepal is shaped like an irregular rectangle and the total land area is 147,181 sq km. The average length from the Mechi river in the east to the Mahakali river in the west is 885 km. The north-south width is not uniform; the maximum is 241 km, the minimum, 145 km, and the average (mean) width is 193 km. Nepal is surrounded by the Tibetan Plateau of China in the north, Sikkim and West Bengal in the east, Bihar and Uttar Pradesh in the south, and Uttar Pradesh in the west.

Topographically, the country can be divided into three well-defined natural regions or physio-geographical belts which run parallel to each other from east to west. They are: (i) the Terai Region, (ii) the Hill Region, and (iii) the Mountain (Himalayan) Region. The Terai region lies at an altitude of 200 to 1,000 ft above sea level in the southern part of Nepal and has a width of 26 to 32 km and occupies about 23 per cent of the total land area. The hill region covers over 42 per cent of the total area and lies at an altitude of 100 to 1,600 ft above sea level. The mountain region lies at an altitude of 16,000 to 29,200 ft above sea level and comprises 35 per cent of the total land area of Nepal.

Nepal is divided administratively into five development regions: (i) Eastern Development Region (EDR), (ii) Central Development Region (CDR), (iii) Western Development Region (WDR), (iv) Mid-Western Development Region (MWDR), and (v) Far-Western Development Region (FWDR). These are further sub-divided into 14 zones and 75 districts. The Eastern Development Region has

three zones and 16 districts; the Central Development Region has three zones and 19 districts; the Western Development Region has three zones and 16 districts; the Mid-Western Development Region has three zones and 15 districts; and the Far-Western Development Region has two zones and nine districts.

Nepal is a country of kaleidoscopic diversity in its racial, ethnic, linguistic and cultural features. The racial stocks are derived from Mongolian, Aryan and pre-Aryan indigenous origins; there are over 70 different population groups, and although Nepali is the national language, there are over 30 languages in Nepal.

According to the 1981 Census, Nepal's population was 150,22,839, of which the urban population constituted 6.4 per cent and the rural population 93.6 per cent. The population is currently estimated to be 18.9 million, growing at about 2.7 per cent per annum. During the 1981 Census, 8.7 per cent of the population lived in the mountains, 47.7 per cent lived in the hilly region, and 43.6 per cent lived in the Terai region. The percentage distribution of population for the Eastern, Central, Western, Mid-Western and Far-Western development regions of the country was 24.7, 32.7, 20.8, 13.0 and 8.8 respectively.

During the same census, there were a total of 25,85,154 households and the average size of each household was 5.8 persons. Population density was 102 persons per sq km and the sex ratio was 105 males per 100 females. The average density of population is about six persons per hectare of cultivable land in the hills and 4.5 in the Terai, although it ranges up to 11 persons per hectare of cropped land in many

MAP OF NEPAL



Adapted from the Map prepared by the Topographical Survey Branch, Survey Department
of His Majesty's Government of Nepal, 1985.

parts of the country.

About 23.3 per cent of the population is literate (1981 Census). Of the literate, 48.7 per cent have only primary school education (grade 1 to 5). The female literacy rate is very low at 11.5 per cent, and female literacy in the rural areas is still lower, at 9.8

per cent. About 70 per cent of the total population is in the working age group and 65.10 per cent of the total working population was economically active in 1981. Approximately 91.40 per cent of the economically active population is engaged in agriculture.

Table 2.1: Selected Health and Socio-Economic Indicators of Nepal

Item		Particulars	Year of reference	Source
1. Population	Total	150,22,839	1981	Census, 1981
	Male	76,95,336		
	Female	73,27,503		
2. Percentage of population by sex	Male	51.22	1981	Census, 1981
	Female	48.78		
3. Sex ratio (males per 100 females)		105	1981	Census, 1981
4. Population (projected)		189,00,289	1990	HMG/NPC Central Bureau of Statistics (CBS), 1986, <i>Population Projection of Nepal</i> Medium Variant, 1980-2000
5. Average annual growth rate		1.70	1952/3-61	Census, 1961
		2.10	1961-71	Census, 1971
		2.66	1971-81	Census, 1981
		2.58	1981-90	Nepal in Figures, 1990
			(compound rate)	
6. Area (in sq km)		1,47,181	1990	Nepal in Figures, 1990
7. Density of population (per sq km)		102	1981	Census, 1981
		128	1990	Calculated from (CBS), 1990, <i>Population Projection of Nepal</i> , Medium Variant, 1980-2000
8. Agricultural population density (per hectare of arable land)		5.61	1985	Inventory of Population Projection in Developing Countries (IPPDC), 1985
9. Percentage of urban to total population		6.40	1981	Census, 1981
		7.70	1985	IPPDC, 1985
10. Percentage of rural to total population		93.60	1981	Census, 1981
		92.30	1985	IPPDC, 1985
11. Literacy rate	Total	23.50	1981	Census, 1981
	Male	34.90		
	Female	11.50		
	Male (rural)	32.90		
	Female (rural)	9.80		
	Total (estimated)	36.40		
12. Age distribution of population (as % of total population)			1989	Nepal in Figures, 1990
	Age Groups			
	0-14	41.40	1981	Census, 1981
	15-59	53.00		
	60 and above	5.60		

Item	Particulars	Year of reference	Source
13.	Ratio of population under 5 years	15.40 1981	Calculated from 1981 Census
14.	Ratio of female population 15-45 years (percentage)	21.50 1981	Census, 1981
15.	Women of child-bearing age as percentage of population	47.00 1988	World Development Report, 1990
16.	Dependency ratio		
	Age 0-14	80.40 1985	IPPDC, 1985
	65 and above	5.30	
17.	Crude birth rate (CBR) (per 1,000)	41.56 1988 (direct estimates)	National Commission on Population (NCP), Midterm Review, 1988, and <i>Country Health Resources and Priorities</i> , 1990
18.	Crude death rate (CDR) (per 1,000)	14.85 1988	<i>Country Health Profile</i> , 1988
19.	Natural growth rate	26.71 1988	Calculated from <i>Country Health Profile</i> , 1988
20.	Infant mortality rate (IMR) (per 1,000 live births)	105.30 1988	National Commission on Population (NCP), and <i>Country Health Profile</i> , 1988.
		126.00 1988	World Development Report, 1990
21.	Under-5 mortality rate (Risk of dying by age 5) (per 1,000)		
	Male	173.00 1988	NCP, 1988, and <i>Country Health Profile</i> , 1988
	Female	187.00	
22.	Maternal mortality rate (MMR) (per 1,000)	8.50 1988	-do-
23.	Life expectancy at birth (in years)		Nepal in Figures, 1990
	Combined	54.02	
	Male	55.38	
	Female	52.60	
24.	Total fertility rate (TFR)	5.80 1988	World Development Report, 1990
		5.60 1990 (Medium estimate)	Nepal in Figures, 1990
25.	Gross reproduction rate (GRR)	2.85 1985	IPPDC, 1985
26.	Net reproduction rate (NRR)	1.96 1985	IPPDC, 1985
27.	Number of medical colleges/institutes	1 1990	<i>Country Health Resources and Priorities</i> , 1990
28.	Number of hospitals	123 1990	<i>Health Information Bulletin</i> , 1990
29.	Number of hospital beds	4,717 1990	-do-
30.	Number of Ayurved units/Ayurved Aushadhyalaya	155 1988-89	Nepal in Figures, 1990

Item	Particulars	Year of reference	Source
31. Number of health posts	816	1988-89	<i>Health Information Bulletin</i> , 1990
	<i>Ilaka</i> 675		
	<i>Static</i> 141		
32. Number of health post laboratories	25	1988	Policy Planning, Monitoring and Supervision Division (PMSD), HMG, Ministry of Health, 1988
33. Number of health laboratories	59	1988	-do-
34. Health centres	16	1988-89	Nepal in Figures, 1990
35. Number of district public health offices	75	1988	PPMSD, 1988
36. Number of regional health training centres	4	1988	-do-
37. Number of family planning clinics	258	1988	-do-
38. Number of regional health services directorates	5	1988	-do-
39. Number of doctors	879	1990	<i>Health Information Bulletin</i> , 1990
40. Number of doctors under HMG	750	1990	-do-
41. Number of other doctors	119	1990	-do-
42. Number of nurses	601	1988	PPMSD, 1988
43. Number of assistant nurse midwives (ANM)	2,062	1988	-do-
44. Number of <i>kavirajas</i>	165	1988	-do-
45. Number of <i>baidyas</i>	114	1988	-do-
46. Number of laboratory technicians	126	1988	-do-
47. Number of malaria laboratory technicians	163	1988	-do-
48. Number of auxiliary health workers (AHW)	1,773	1988	-do-
49. Number of village health workers (VHW)	4,182	1988	-do-
50. Number of panchayat based health workers (PBHW)	2,626	1988	-do-
51. Number of health assistants	1,017	1988	-do-
52. Number of health volunteers	4,570	1988	-do-
53. Number of district public health (DPH) officers	75	1988	-do-
54. Number of health inspectors	89	1988	-do-

Item	Particulars	Year of reference	Source
55. Population per hospital	1:80,292	1988/90	Calculated on the basis of figures of PPMSD, 1988, <i>Country Health Profile</i> , 1988 and <i>Health Information Bulletin</i> , 1990
56. Area served per hospital in sq km	1,196	1988/90	-do-
57. Population per hospital bed	1:3,909	1988/90	-do-
58. Hospital beds per 1,000 population	0.25	1988/90	-do-
59. Population per health post	1:22,622	1988/90	-do-
60. Population per health centre	1:9,75,388	1988/90	-do-
61. Population per doctor	1:19,691	1988/90	-do-
62. Doctors per 1,000 population	0.05	1988/90	-do-
63. Population per nurse	1:28,799	1988/90	-do-
64. Nurse per 1,000 population	0.03	1988/90	-do-
65. Number of nurses per 100 doctors	79	1988/90	-do-
66. Population per ANM			
67. ANM per 1,000 population	0.19	1988/90	-do-
68. Number of ANMs per 100 doctors	271	1988/90	-do-
69. Population per kaviraja / baidya	1:62,036	1988/90	-do-
70. Kaviraja / baidya per 1,000 population	0.01	1988/90	-do-
71. Population per AHW	1:9,762	1988/90	Calculated on the basis of figures of PPMSD, 1988, <i>Country Health Profile</i> , 1988 and <i>Health Information Bulletin</i> , 1990
72. AHW per 1,000 population	0.10	1988/90	-do-
73. Number of AHWs per 100 doctors	233	1988/90	-do-
74. Population per VHW/PBHW	1:2,542	1988/90	-do-
75. VHW/PBHW per 1,000 population	1988/90	-do-	
76. Population per health volunteer	1:3,787	1988/90	-do-
77. Health volunteers per 1,000 population	0.26	1988/90	-do-
78. Births attended by health staff (%)	10.00	1985	World Development Report, 1990
79. GDP at current prices (1987-88 in million rupees)	67,835	1987/88	Nepal in Figures, 1990
80. GDP at 1974-75 prices (in million rupees)	27,765	1987	-do-

Item	Particulars	Year of reference	Source
81. GDP at market price (in million rupees)	59,673	1987	CBS, 1988
82. GDP in the community and social services (in million rupees)	5,458	1987/88	Nepal in Figures, 1990
83. GDP (in million US \$)	2,860	1988	World Development Report, 1990
84. GNP per capita (US \$)	180	1988	-do-
85. Percentage of population living below poverty line (% of absolute poor)			
- As defined by the NPC* (conservative estimate)		1987	CBS, 1988
Total	40.00		
Rural	42.00		
Urban	15.00		
- According to accepted international definition of absolute poverty**		1990	Nepal: Relieving Poverty in a Resource Scarce Economy, World Bank, 1990
Total	71.00		
Rural	74.00		
Urban	42.00		
86. Share of labour force depen- dent on agriculture (%)	93	1988	World Development Report, 1990
87. Net per capita annual availability of food- grains (in kg)	146	1986	Food Statistics of Nepal, 1986, Dept. of Food and Agricultural Marketing Service Department
88. Daily calorie supply(per capita)	2,052	1986	World Development Report, 1990
89. Shares of GDP (%)			
- Agriculture	56	1988	-do-
- Industry	17	1988	-do-
- Manufacturing	6	1988	-do-
- Services	27	1988	-do-
90. Energy consumption per capita (kg of oil equivalent)	23	1988	-do-
91. Plan outlay on health (in thousand rupees)		1988-89	Health Information Bulletin, 1990
Regular	2,68,705		
Health development	8,19,000		
Total	10,87,705		
92. Ministry of Health budget as a percentage of national budget	5.57	1988-89	Calculated from Health Information Bulletin, 1990
93. Access to safe drinking water (% of total population)		1986	International Drinking Water Supply and Sanitation Decade, Nepal Resource Mobilisation Profile, 1986
Total	28.3		
Urban	70.4		
Rural	24.7		

Item	Particulars	Year of reference	Source
94. Access to sanitation facilities (% of total population)		1986	-do-
	Total	1.7	
	Urban	17.2	
	Rural	0.2	
95. Tetanus incidence rate per 1,00,000 population	5.9	1983	1982-83 WHO Technical Report SEA/EPI/45
96. Diptheria incidence rate per 1,00,000 population	14.5	1983	-do-
97. Neonatal incidence rate per 1,00,000 population	21.9	1983	-do-
98. Polio incidence rate per 1,00,000 population	17.9	1983	-do-
99. Bacteriological detection (ACF and PCF)	4,264	1987	PPMSD, 1988, and <i>Country Health Profile</i> , 1988
100. Number of registered TB patients under treatment	10,526	1987	-do-
101. Leprosy risk population	1,22,901	1988	<i>Country Health Profile</i> , 1988
102. Diarrhoeal morbidity		1985	Diarrhoeal Associated Morbidity and Mortality Survey, Ministry of Health, 1985
- two week diarrhoeal period prevalence rate (out of 6,119)	30.51%		
- two week diarrhoeal incidence rate (out of 6,119)	26.70%		
103. Estimated (seasonal) diarrhoeal episodes per child per year	6.1	1985	-do-
104. Under-5 diarrhoeal associated mortality rate	15.7	1985	-do-
105. Population at risk from malaria	1,08,70,792	1988	<i>Health Information Bulletin</i> , 1990
106. Total positive cases (malaria)	24,989	1988	-do-

* For the definition of poverty line see footnote 3 in Chapter 1.

** Income below US \$ 150 per capita per annum.

3.

Current Health Status

As mentioned earlier, the health status is uniformly poor in Nepal: the infant mortality rate is among the highest in the world, life expectancy is among the lowest, there is a remarkably high incidence of parasite infestations, diarrhoeal diseases, malnutrition, goitre, acute respiratory infections and morbidity associated with pregnancy and childbirth, cretinism and blindness also afflict a large proportion of the population, and the incidence of malaria has recently shown an upward trend.

Mortality

In spite of the fact that over the last few decades mortality rates in Nepal have been declining, the figures are extremely high as compared to neighbouring countries.

Crude Death Rate (CDR)

The crude death rate (CDR) is only a very rough estimate of mortality and for a better and clearer understanding, if possible, this has to be supplemented by age-specific mortality. The CDR in Nepal has come down from 30 to 37 per 1,000 in the 1950s to 14.85 per 1,000 in 1987 (see Figure 3.1), perhaps, in part, due to the increase in literacy rates (which increased from 5.3 in the 1950s to 23.5 according to 1981 Census), better communication, expansion of health infrastructure, and the initial success of such programmes as malaria eradication, immunisation and oral rehydration.

It is common knowledge that in the absence of an effective birth and death registration system (only 40 districts have been covered and that too only partially), it is very difficult to estimate the CDR, and perhaps the only reliable sources are the census reports.

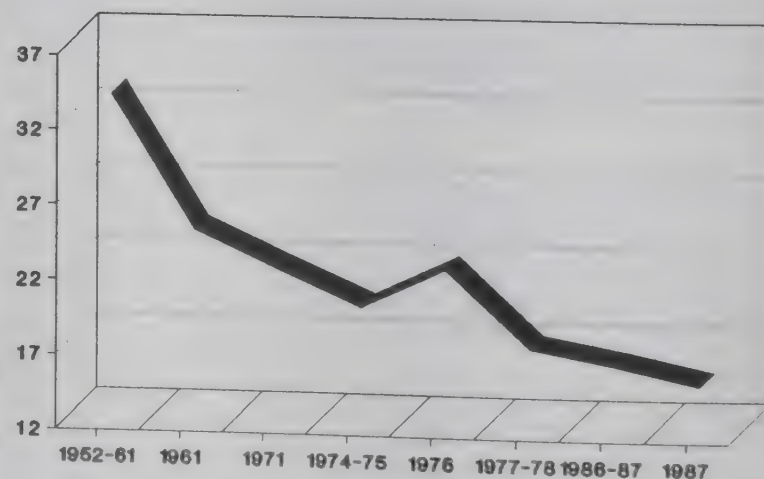
Figure 3.1, based on data compiled by the Policy Planning, Monitoring and Supervision Division (PPMSD), has been derived from widely varying

data and sources. For instance, 1952-61 data is from UN sources, 1960-61 has been taken from Thakur, 1961 data from Gubhaju, 1971 from Ramachandran, 1974-75, 1976, and 1977-78 from the Central Bureau of Statistics (CBS), 1986-87 data from the Demographic Sample Survey, and 1987 from CBS data of national population. However, interestingly enough, the data makes no mention of the estimates for CDR based on Census data of 1961, 1971 and 1981.

In a Table presented in the report, *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All / 2000 Strategies*, citing data from HMG/NPC Central Bureau of Statistics, 1987, Population monograph, Nepal, the CDR per 1,000 population for the census years 1961, 1971 and 1981 have been estimated at 27.0, 21.4 and 13.5, respectively. This shows that the CDR had declined to a level of 13.5 during the year 1981. However, these figures should be treated with utmost care, because in analysing

Figure 3.1

Estimates of Crude Death Rate
per 1000 population : 1952-1987



Source : Country Health Profile, 1988.

mortality indicators in Nepal we are confronted with a great deal of uncertainty and risk and hence it is very difficult to arrive at precise data on the crude mortality rate. This would also apply to almost all the indicators with which we will be dealing in the following pages.

Estimates of the CDR by development region show that while it is high in the Mid-Western (18.84) and Far-Western (18.10) regions, it is lower than the national average (14.85) in the Eastern (12.63) and Central (13.96) development regions (see Table 3.1).

Although there is no nation-wide data available for CDR by district or according to income levels/economic status, there are a few sample surveys which show that there are certain districts like Jumla where the CDR is as high as 26 and the CDR among the 'poor' is higher (27) than among the rich (14) (see Tables 3.2 and 3.3).

Table 3.1: Estimates of Crude Death Rates per 1,000 Population by Development Region, 1987

Development Region	Crude death rate
Eastern	12.63
Central	13.96
Western	15.36
Mid-Western	18.84
Far-Western	18.10
Nepal	14.85

Source: National Population Commission, 1988, as cited in *Country Health Profile*, 1988.

Table 3.2: Crude Death Rates per 1,000 Population Based on One Year Recall Sample Survey in Jumla and Dhankuta Districts

District	Year	Population surveyed	Number of deaths	Crude death rate per 1,000 population
Jumla	1981	15,000	386	26
Dhankuta	1983	3,610	76	21

Source: Jumla Community Health Survey, 1982 and Dhankuta Community Survey, 1985, as cited in *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal.

Table 3.3: Crude Death Rates per 1,000 Population Based on One Year Recall Sample Survey in Dhankuta District by Economic Status, 1983

Economic Status	Crude death rate per 1,000 population
'Rich'	14
Intermediate	17
'Poor'	27

Source: Dhankuta Community Survey, 1985, as cited in *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal. HMG/WHO Management Group, Kathmandu, 1987.

Infant Mortality Rate (IMR) and Under-5 Mortality Rate (U-5MR)

The infant mortality rate (IMR) and the under-5 mortality rate (U-5MR) are very sensitive indicators of health status. Both indicators are useful in measuring the level of care and protection that the community/society/government have been able to provide for these vulnerable groups from a hostile environment. However, like the CDR, the common characteristics of both these indicators is the necessity of a good reporting system which is unfortunately difficult to develop, making data very unreliable.

According to the official sources of the Government of Nepal, infant mortality is estimated to occur at the rate of around 110 per 1,000 live births; while under-5 mortality is estimated at about 165 per 1,000. However, the latest available figures for the year 1987 from the National Commission on Population puts the IMR at 105.3.

Interestingly, the IMR according to the latest World Development Report, 1990, is still estimated at 126 (reference year 1988), while U-5MR figures for males and females are 173 and 187, respectively.

Like the CDR, IMR statistics for Nepal are also inconsistent and unreliable, perhaps due to the fact that infant mortality continues to be unreported or under-reported. To cite an example, from the 1961 Census, the IMR estimate was 77 per 1,000 (which was of course believed to be a gross underestimate), the 1965 National Health Survey (NHS) put the IMR at 130-200 per 1,000, while the IBRD estimate in 1973 was 300 per 1,000.

Again, like CDR data, the data for IMR in Figure

3.2 compiled by the PPMSD for the *Country Health Profile*, 1988, provides estimates from various sources for different points of time. At least one inconsistency is clear in this Figure and this refers to the IMR for 1978: 104 per 1,000 appears to us to be an underestimate.

Figures 3.3, 3.4, 3.5, 3.6 and Table 3.4 provide estimates of IMR by rural, urban and ecological zones (mountain/hill/Terai), by development regions (Eastern, Central, Western, Mid-Western, Far-Western), by select population groups (Newal, Brahmin, Chhetri, Tamang), by economic status/income levels (very rich, rich, intermediate, poor, very poor), and by select districts (Jumla and Dhankuta).

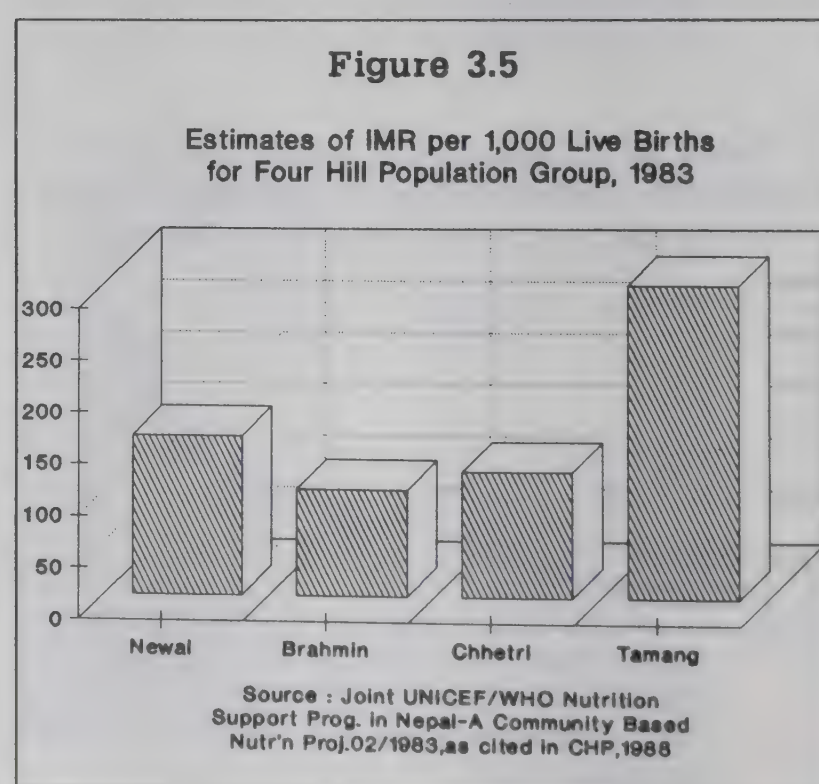
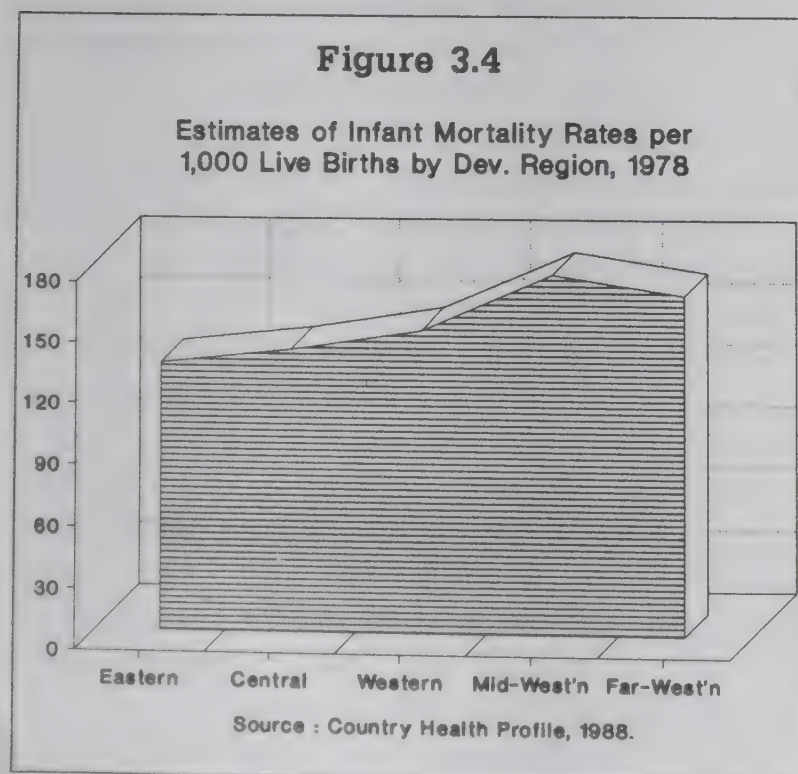
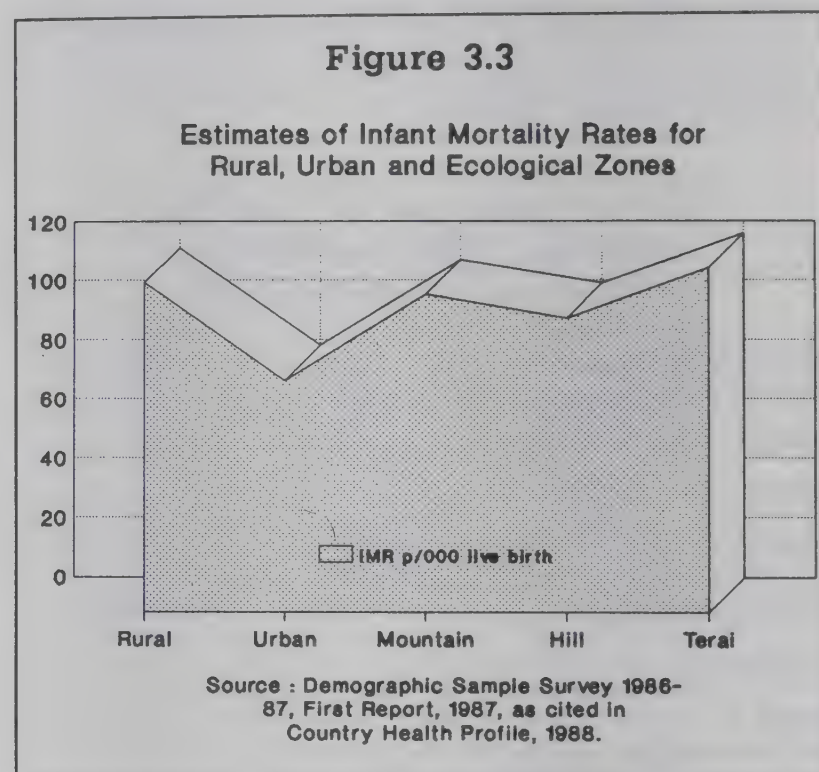
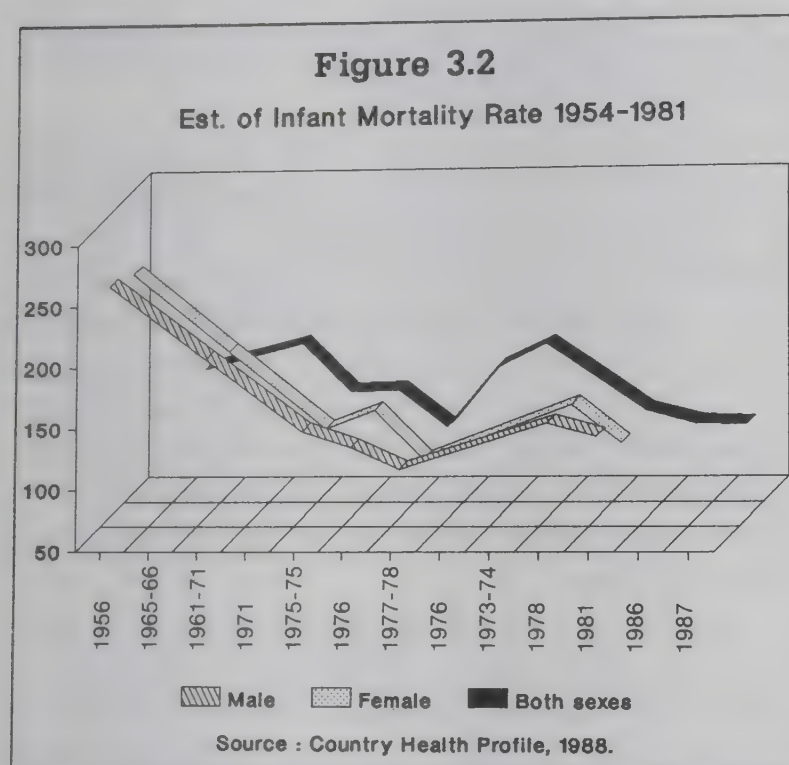
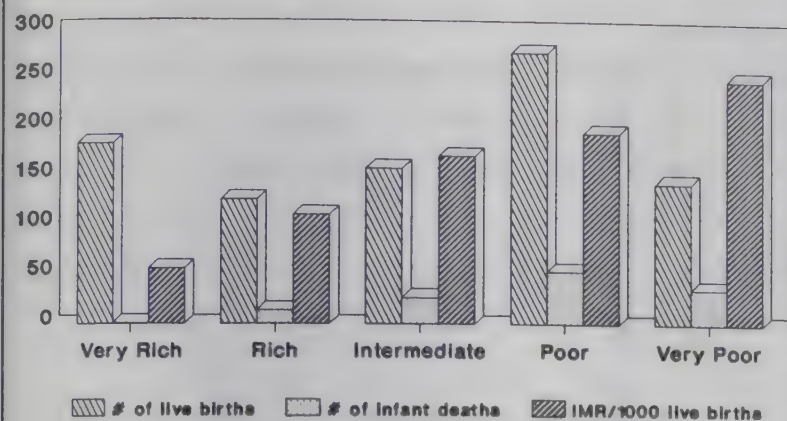


Figure 3.6

Estimates of IMR per 1,000 Live Births
Based on 1yr. Recall Sample Survey-1981



Source : Jumla Community Health Survey
1982 as cited in Basic Info./Indicators
to Support Impl.of BMN & HFA/2000 Strat.

Table 3.4: Estimates of Infant Mortality Rates per 100 Live Births Based on One Year Recall Sample Survey in Jumla and Dhankuta Districts

	District	Year	Number of live births	Infant mortality rate per 1,000 live births
Jumla	1981	724	133	184
Dhankuta	1983	148	17	115

Source: Jumla Community Health Survey, 1982 and Dhankuta District Community Survey, 1985, as cited in *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal. HMG/WHO Management Group, 1987.

probably account for most neonatal deaths, which in turn account for perhaps more than 55 per cent of infant mortality. Post-neonatal mortality seems to be closely associated with gastrointestinal diarrhoeal diseases and respiratory tract infections. In some studies measles figures prominently as a cause of death, especially in combination with malnutrition.

Therefore, the main causes of the high IMR can be seen as inadequate nutrition and poor sanitation facilities, which in turn depend on the environment — both natural/physical, which include low education, low purchasing power and scarcity of health services.

Maternal Mortality Rate (MMR)

The maternal mortality rate (MMR) like the IMR is

also a very sensitive indicator and is a measure of the level of care and protection against the 'physiological illness' of motherhood.

As in the case of IMR, a similar or even a more serious situation exists with regard to maternal mortality. Although the MMR has been neglected by researchers, it appears to be exceptionally high: estimated at 850 per 1,00,000 deliveries, a figure which is easily one of the highest and most alarming in the world. Figure 3.7 provides information about female death by age and attributed causes.

Life Expectancy

This indicator measures the total effect of the positive and negative currents of health and health care, including, among other aspects, environment, sanitation and education. This is a measure which tells us at a given point of time what percentage of the population will survive to a specific age in future. Hence, it tells us about the survival rate rather than the health status of the population.

Life expectancy at birth remains very low in Nepal and is estimated at 54 years for males and 51 years for females, with indications that this gap is widening. Nepal is one of the few countries in the world where life expectancy of females is less than males. Figure 3.8 furnishes data on life expectancy by sex from 1954 to 1981.

If the estimates of 27 years of life expectancy at birth for males and 28 years for females in 1954 are taken to be reliable, Nepal's health status has definitely improved over the years.

Estimates of life expectancy by development region shows that while it is high in the Central (54.40) and Eastern (54.06) regions, it is lower than the national average in the Mid-Western (46.29) and Far-Western (47.26) development regions. While the estimate of expectancy of life at birth for urban areas is better than for rural areas, it is worse in the Terai as compared to the hilly regions (see Figures 3.9 and 3.10).

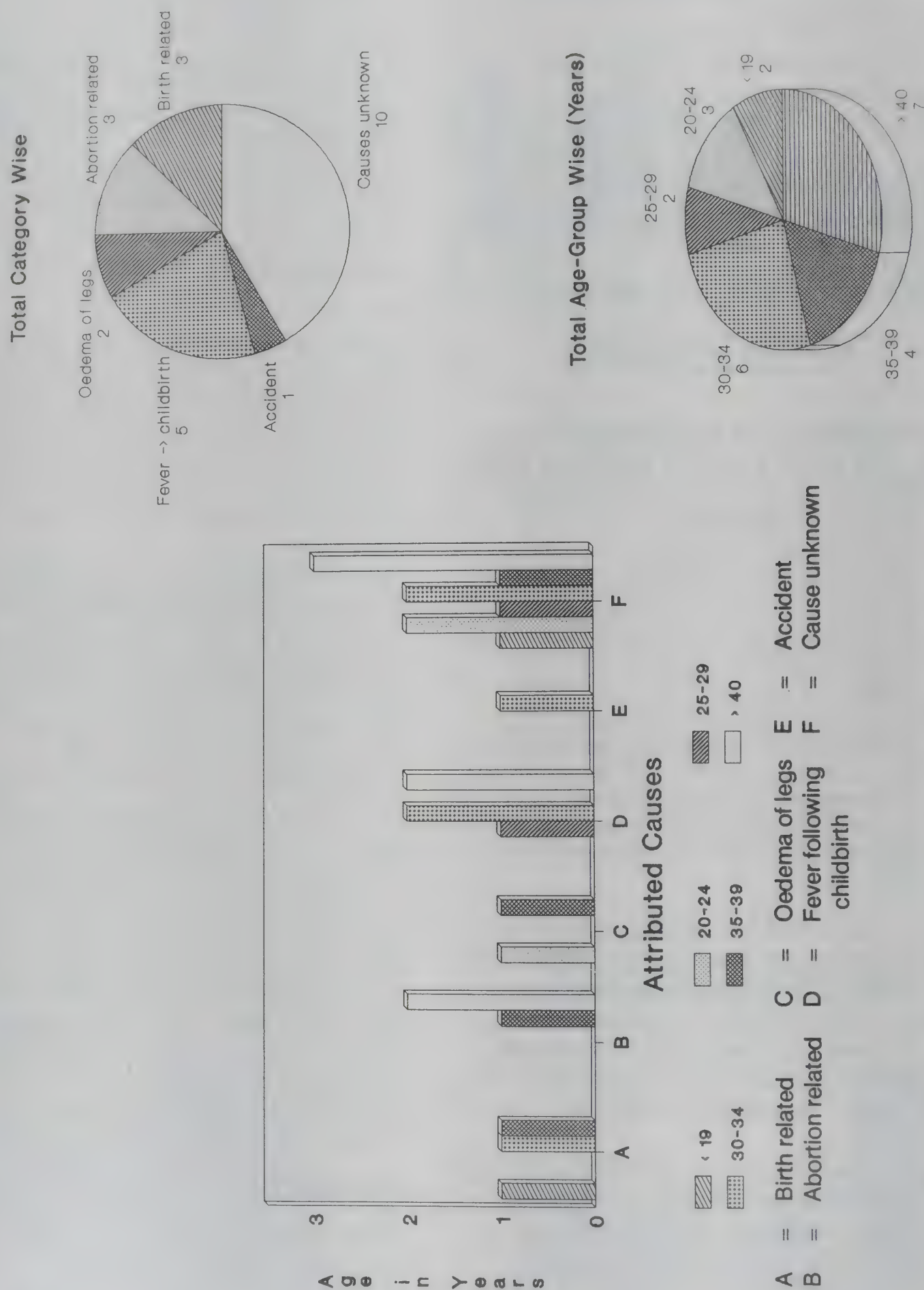
MORBIDITY

Although the preceding data reveals that many more people are living or surviving in Nepal today as compared to the past, they are probably at the mercy of illnesses as much as before.

Morbidity statistics are also unreliable and continue to be under-reported or misreported in Nepal. For a proper perception of morbidity we

Figure 3.7

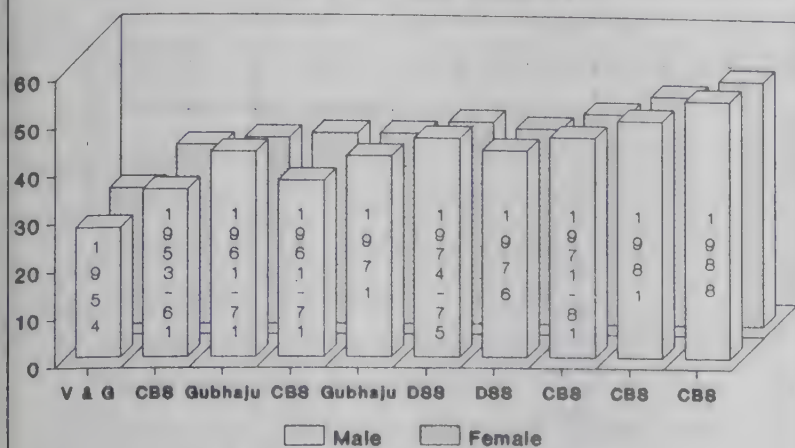
Adult Female Deaths by Age Attributed Causes for Total Period of Survey, 1976-78



Source : Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All by year 2000 Strategies, Nepal

Figure 3.8

Estimates of Expectation of Life at Birth by Sex, 1954-81

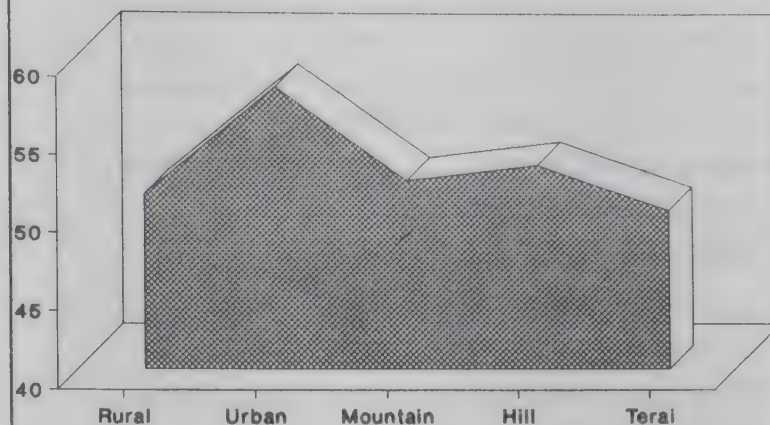


Source : Country Health Profile, 1988

V&G: Vaidyanathan and Gaige, CBS: Central Bureau of Statistics Gubhaju, CBS: Central Bureau of Statistics Gubhaju, DSS: Demographic Sample Survey, DSS: Demographic Sample Survey, CBS: Central Bureau of Statistics, CBS: Central Bureau of Statistics, CBS: Central Bureau of Statistics.

Figure 3.10

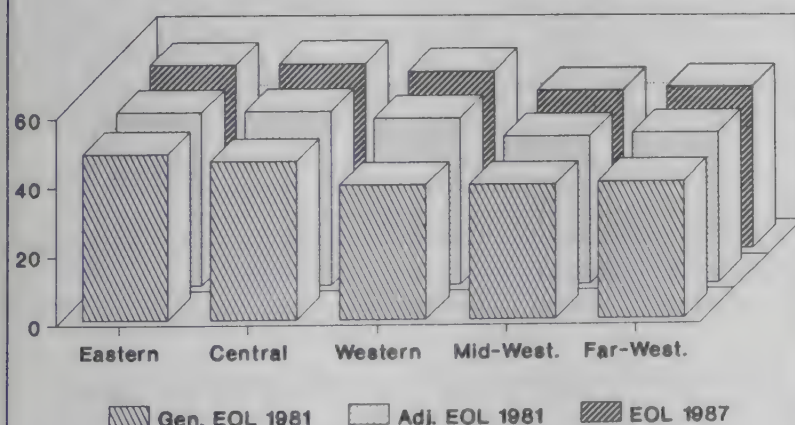
Estimates of Life Expectancy at Birth in Years



Source : Demographic Sample Survey 1986/87, First Report, 1987 as cited in Country Health Profile, 1988.

Figure 3.9

Estimates of Expectation of Life (EOL) at Birth by Development Region, 1981-1987



Source : National Commission on Population, as cited in Country Health Profile, 1988.

should have information on the frequency and duration of illness, the effect of illness in terms of deviation from the normal state — confinement to bed, hospitalisation, constraints on activity, diet, etc. The socio-economic background of the persons affected, their housing, water supply, sanitation, personal hygiene, living conditions and lifestyle would provide useful information for a true understanding of the genesis of the problems. Comprehensive and reliable data on morbidity for the country as a whole is not available at present. So far no attempt has been made to collect such data. The only published source of data is on diseases treated in government health institutions. Needless to say, such data is limited to those who

resort to these institutions, and hence it touches only the tip of the iceberg. Further, the data is insufficient to make an assessment of either the incidence rate or prevalence rate. Again, the reliability of this data also leaves much to be desired.

The available information on morbidity (including 20 leading causes) from a sample of hospital wards (in-patients) and attendance at health posts has been furnished in Tables 3.5 to 3.8.

It is seen from Tables 3.5 and 3.6 that infectious and parasitic diseases are the primary cause of attendance at health posts and the second cause of hospital admissions in Nepal. Symptoms, signs and ill-defined conditions constitute an increasingly important cause of attendance at both health posts (ranked third in 1984-85) and hospitals (ranked sixth in 1980-81 and second in 1983-84). This indicates a serious weakness in the quality of diagnosis and service delivery. Diseases of the skin and subcutaneous tissue contribute significantly towards illnesses for which people seek medical assistance at health posts in the rural areas. The types of diseases included under this category are scabies, infected ulcers, numerous fungal infections and abscesses. All these diseases are related to personal hygiene, are infectious and contribute significantly to morbidity among the people of Nepal.

The data presented in the above Tables reveal that the principal causes of morbidity in Nepal are parasitic infestations (e.g., ascaris, ankylostomiasis, trichuriasis), gastrointestinal diseases or

Table 3.5: Morbidity Data from Hospital In-patients, 1980/81 and 1983/84

Cause Group	1980/81*		1983/84**	
	Cases		Cases	
	Number	Per cent	Number	Per cent
1. Complications due to pregnancy, childbirth and puerperium	7,048	25.1	18,562	47.5
2. Infectious and parasitic diseases	4,264	15.2	3,515	9.0
3. Injury and poisoning	2,898	10.3	2,898	7.4
4. Diseases of the digestive system	2,347	8.4	1,952	5.0
5. Diseases of the respiratory system	2,289	8.2	2,349	6.0
6. Symptoms, signs and ill-defined conditions	2,080	7.4	4,810	12.3
7. Diseases of the genito-urinary system	1,829	6.5	1,811	4.6
8. Diseases of nervous system and sense organs	1,728	6.2	851	2.2
9. Diseases of the circulatory system	1,132	4.0	790	2.0
10. Diseases of the skin and subcutaneous tissue	587	2.1	335	0.9
11. Diseases of the blood and blood-forming organs	500	1.8	475	1.2
12. Neoplasm	399	1.4	244	0.6
13. Diseases of the musculo-skeletal system and connective tissue	301	1.1	164	0.4
14. Endocrine, nutritional and metabolic diseases and immunity disorders	250	0.9	250	0.6
15. Mental disorders	199	0.7	53	0.1
16. Congenital anomalies	114	0.4	36	0.1
17. Supplementary classification (VO)	65	0.2	--	--
18. Certain conditions originating in the perinatal period	31	0.1	--	--
TOTAL	28,061	100.0	39,095	99.9

Note : * - Data from 18 hospitals with 740 beds.
 ** - Data from 39 hospitals with 1,914 beds.

Source: *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal. HMG/WHO Management Group, Kathmandu, 1987.

diseases of the digestive system (including diarrhoea — both parasitic/non-parasitic, dysentery — bacillary/amoebiasis, gastritis, enteritis, etc.), respiratory infections (both upper and lower), and complications caused by pregnancy and childbirth.

Thus, it is clear that infectious and parasitic diseases and diseases of the digestive and respiratory systems which are either bacterial or viral in nature constitute the main causes for in-patient admissions in hospitals and attendance at health posts. Therefore, a pattern of environmental responsibility is clearly visible. Safe drinking water, sanitation and nutrition as in the case of mortality are the main causes for the prevalence of diseases.

Malaria: Malaria is one of the major health

problems in Nepal, with around 62 per cent of the population living in malaria endemic areas. Nepal reported up to two million cases of malaria a year during the 1950s, which declined to only 2,518 cases by 1970, a substantial decrease. However, the mid-1980s saw a resurgence. Due to epidemiological and entomological reasons and faulty delivery services, malaria cases reached a new height of 42,221 cases in 1985, decreasing to 36,351 in 1986, 26,866 in 1987 and 24,989 in 1988 (the latest available information). The epidemiological data on malaria in Nepal from 1980 to 1988 is furnished in Table 3.9.

The future prospects of the incidence of malaria are bleak in view of the increasing indigenous

Table 3.6: Causes for Attendance at 15 Health Posts in Kaski District, 1984/85

Cause Group	Attendance	
	Number	Rate per 1,000 population
1. Infectious and parasitic diseases	33,317	158.8
2. Diseases of the skin and subcutaneous tissue	21,564	102.8
3. Symptoms, signs and ill-defined conditions	18,758	89.4
4. Diseases of the respiratory system	17,092	81.5
5. Diseases of the digestive system	12,507	59.6
6. Diseases of the nervous system and sense organs	7,609	36.3
7. Injury and poisoning	6,294	30.0
8. Diseases of the musculo-skeletal system and connective tissue	3,116	14.9
9. Endocrine, nutritional and metabolic diseases and immunity disorders	3,081	14.7
10. Diseases of the blood and blood-forming organs	1,716	8.2
11. Diseases of the genito-urinary system	1,643	7.8
12. Complications due to pregnancy, childbirth and puerperium	350	1.7
13. Diseases of the circulatory system	333	1.6
14. Certain conditions originating in the perinatal period	202	1.0
15. Mental disorders	20	0.1
16. Neoplasm	9	0.04
17. Congenital anomalies	4	0.02
TOTAL	127,615	608.3

Source: Annual Report 1984-85, Public Health Sector, Kaski District, 20 July, 1985, as cited in *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal. HMG/WHO Management Group, Kathmandu, 1987.

cases of the parasite *Plasmodium falciparum* (up from 55 per cent in 1985 to 93 per cent in 1987), many of which are now resistant to chloroquine. In addition, the resistance level of the mosquitoes (Anopheline vectors) appears to increase with insecticide applications (DDT in some areas and Malathion in others), as a result of which insecticides need to be used very selectively.

Since malaria control measures affect the prevalence of other vector-borne diseases as well, a deterioration in the malaria programme (including insufficient spraying) implies similar effects with regard to such diseases as Japanese encephalitis, *kala-azar* (visceral leishmaniasis), even dengue fever. Interestingly, dengue fever, which is probably a serious health problem (of a periodic nature) in Nepal, is often wrongly diagnosed as influenza, 'some other respiratory infection' or just 'fever' or 'symptoms, signs and ill-defined conditions' (which constitutes an important cause of hospital/health

post attendance). Thus, dengue fever in the country is under-reported and its incidence remains a gross underestimate.

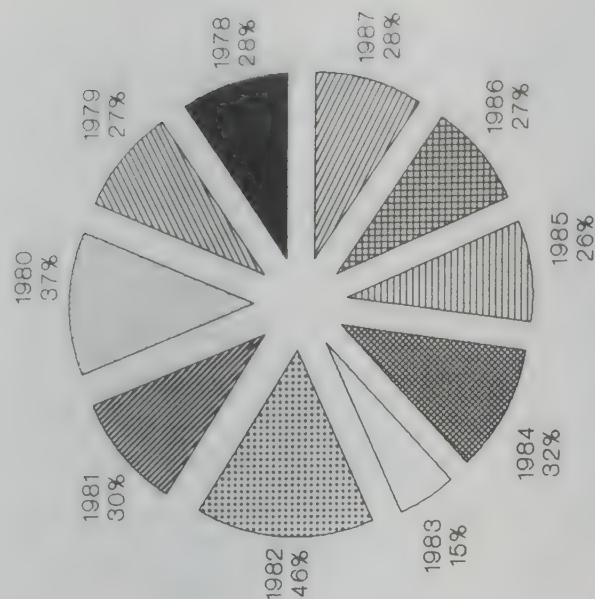
Japanese Encephalitis: Japanese encephalitis is emerging as a serious health problem in Nepal. Although there is no clear epidemiological information about the disease, it has been found to occur almost every year since 1978 during the hot and humid seasons in about 23 districts, mainly in the Terai area of the country. Some of these districts are adjacent to Bihar and Uttar Pradesh. Figure 3.11 reports the number of cases, deaths and case fatality rates from the year 1978 to 1987, and Figure 3.12 furnishes information on case fatality rates during the outbreaks of 1985 and 1986 according to the district.

Figure 3.11 reveals that the disease has shown a cyclical trend since 1978, with peaks in 1980 (622 cases), 1982 (843 cases), 1985 (692 cases), finally reaching epidemic proportions in 1986 with 1,195

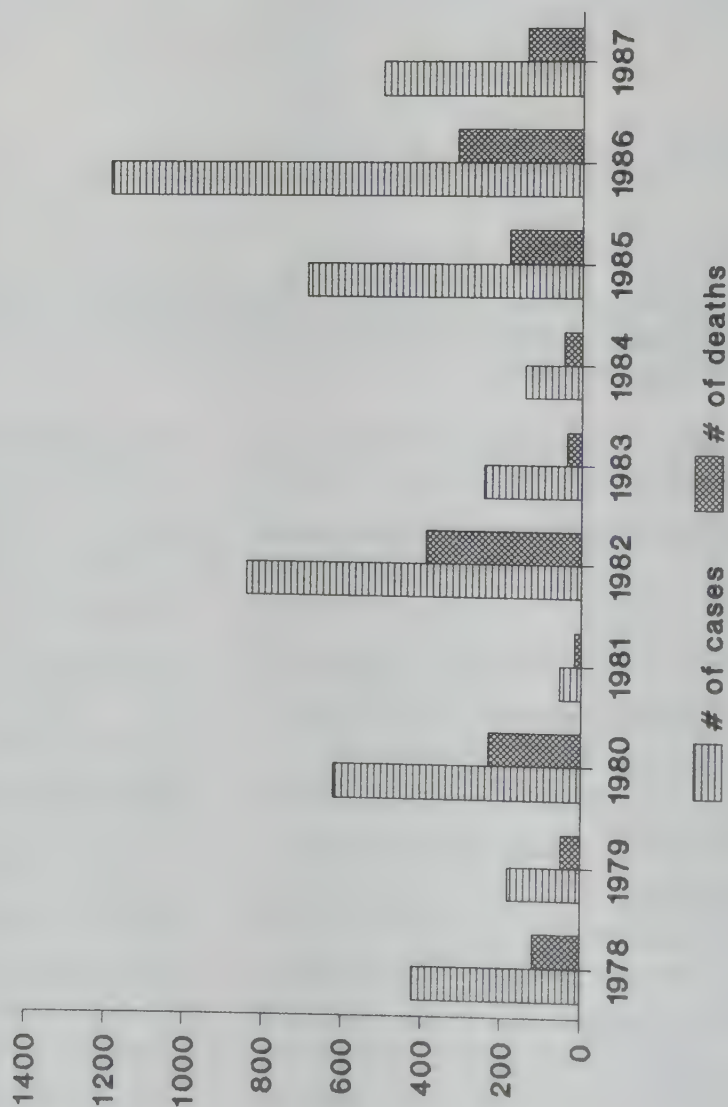
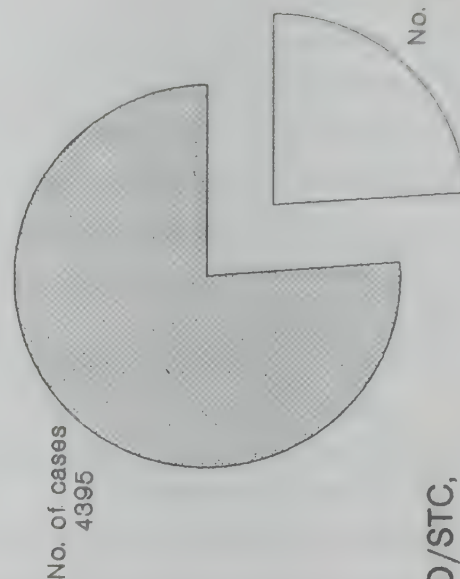
Figure 3.11

Reported Number of Cases and Deaths due to Japanese Encephalitis, 1978 to 1987

Case Fatality Rate

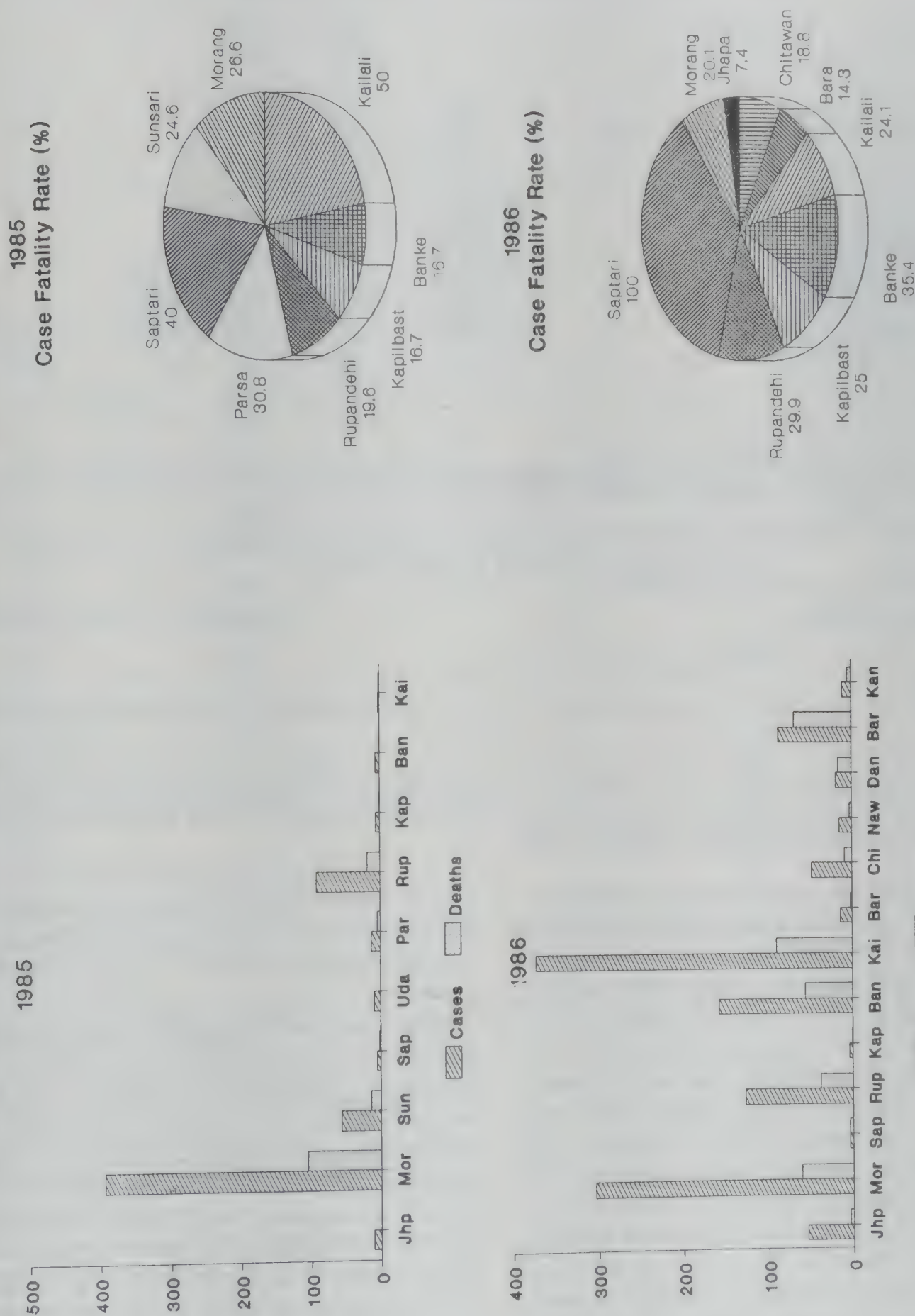


Total (Years)



Source : Review of the Problem of Japanese Encephalitis in Nepal by Dr C.H.Hoke, Jr., WHO/STC, 24.11.1986 to 4.12.1986 (SEA/CD/100), 4.3.87 as cited in Country Health Profile, 1988

Figure 3.12
Japanese Encephalitis Case Fatality Rates - Outbreak by Districts -



Jhp = Jhapa Mor = Morang Sun = Sunsari Sap = Saptari Uda = Udayapur Par = Parsa
 Rup = Rupandehi Kap = Kapilbast Ban = Banka Kai = Kailali Bar = Bara Chi = Chitawan
 Naw = Nawalparasi Dan = Dang Bar = Bardiya Kan = Kanchanpur

Source : Japanese Encephalitis Outbreak during the Years 1985 and 1986 by
 Dr. D.D.Joshi (unpublished), March 1987, as cited in Country Health Profile, 1988.

Table 3.7: Twenty Leading Causes among 39,095 Hospital In-patients, 1983/84

Causes	Cases	
	Number	Per cent
1. Normal delivery	14,788	37.8
2. Symptoms, signs and ill-defined conditions	4,810	12.3
3. Direct obstetric causes	1,932	5.0
4. Diseases of other parts of the digestive system	1,828	4.9
5. Abortion	1,805	4.6
6. Other diseases of the respiratory system	1,739	4.4
7. Diseases of the female genital system	1,093	2.8
8. Other injuries	1,054	2.7
9. Gastroenteritis	1,033	2.6
10. Fractures	797	2.0
11. Diseases of the upper respiratory tract	610	1.6
12. Pulmonary tuberculosis	578	1.5
13. Diseases of the urinary system	533	1.4
14. Diseases of the blood and blood-forming organs	475	1.2
15. Diseases of the pulmonary circulation and other forms of heart disease	379	1.0
16. Burns	369	0.9
17. Diseases of the skin and subcutaneous tissue	335	0.9
18. Poisoning and toxic effect	319	0.8
19. Tetanus	283	0.7
20. Typhoid fever	270	0.7
TOTAL	35,030	89.8

Source: *Epidemiological Bulletin*, vol.6, nos.1-4, 1985, Epidemiology and Statistics Division, Ministry of Health, as cited in *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal. HMG/WHO Management Group, Kathmandu, 1987.

cases and 314 deaths. It is also seen that there has been a significant increase in the number of cases and deaths since 1984, with the reported number of cases having increased from 142 in 1984 to 692 in 1985 and 1,195 in 1986. Although there was a decrease in the number of cases to 502 in 1987, the case fatality rate in the same year was almost double that in 1983 (over 28 per cent in 1987 as compared to 15 per cent in 1983). Figure 3.12 shows that while the outbreak was severe in both 1985 and 1986 in Morang district, in 1986, Kailali district was also badly affected. The case fatality rates during the 1986 outbreak were very high in the districts of Saptari, Dang and Bardiya as well (100 per cent, 84 per cent and 78 per cent, respectively).

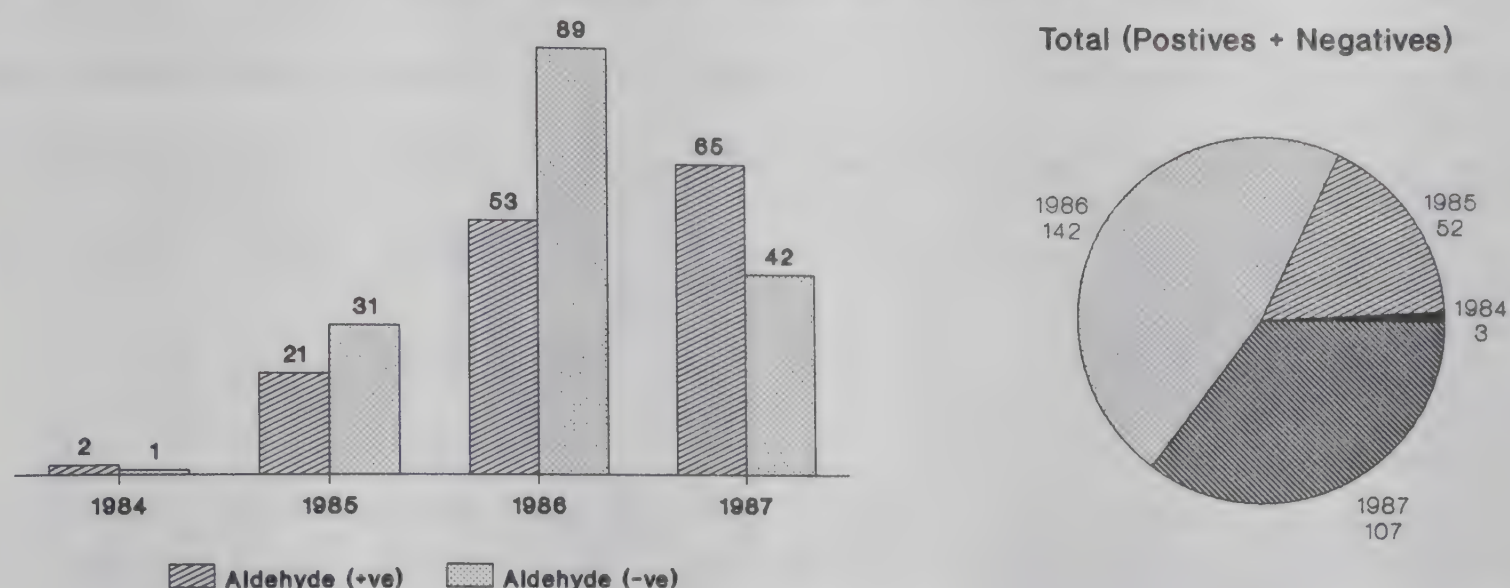
Kala-azar (visceral leishmaniasis): Based on the hospital records of Siraha district, Figure 3.13 was compiled to show the increasing incidence of *kala-*

azar in Nepal. Unfortunately, no detailed data on the incidence of *kala-azar* in other districts or clear epidemiological information about this disease is available.

Meningococcal Meningitis: During the last decade, meningococcal meningitis has suddenly assumed epidemic proportions in certain parts of the country. While country-wide data is not available, the month-wise data on the number of cases and deaths reported by the four hospitals (Teku Hospital, Kanti Hospital, Patan Hospital and Bhaktapur Hospital) in Kathmandu valley for the years 1985-86 and 1986-87 is furnished in Figure 3.14.

Tuberculosis: Despite hard-fought battles against tuberculosis during the last three decades, it continues to be prevalent throughout the country and among all age groups, and remains a major public health problem in the country. Table 3.10 provides data on the problem.

Figure 3.13
Hospital Records of Kala-azar in Siraha District



Source : Interim Report on Kala-azar Project, Nepal, March 1988, as cited in Country Health Profile, 1988.

Table 3.8: Twenty Leading Causes for 127,615 Health Posts Attendance Reported by 15 Health Posts in Kaski District, 1984/85

Causes for health post attendance	Health post attendance	
	Number	Per cent
1. Diseases of the skin and subcutaneous tissue	21,564	16.9
2. Helminthiasis	13,667	10.7
3. Enteritis and other diarrhoeal diseases	9,978	7.8
4. Acute upper respiratory infections	9,091	7.1
5. Headache	7,093	5.6
6. Bacillary dysentery and amoebiasis	6,927	5.4
7. Gastritis and duodenitis	5,549	4.3
8. Fever of unknown origin	4,803	3.8
9. Cough, chest pain	4,511	3.5
10. Bronchitis, emphysema and asthma	4,320	3.4
11. Otitis media and mastoiditis	3,700	2.9
12. Other diseases of the digestive system	3,564	2.8
13. Diseases of the teeth and supporting structures	3,278	2.6
14. Inflammatory diseases of the eye	2,940	2.3
15. Avitaminosis and other nutritional deficiencies	2,770	2.2
16. Sprains and dislocations	2,393	1.9
17. Cuts, lacerations and superficial injuries	2,060	1.6
18. Arthritis and spondylitis	1,868	1.5
19. Pneumonia	1,629	1.3
20. Anaemia	1,338	1.0
TOTAL	113,043	88.6

Source: Annual Report, 1984/85, Public Health Sector, Kaski District, 20 July, 1985, as cited in *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal.

Table 3.9: Epidemiological Data in Relation to Malaria in Nepal, 1980 through 1988

Item	1980	1981	1982	1983	1984	1985	1986	1987	1988
Total population of the country	141,00,000	150,20,000	154,25,540	158,42,030	162,69,764	166,27,699	170,43,391	174,69,476	179,06,212
Population at risk from malaria	85,02,192	87,40,567	91,44,896	84,80,887	97,71,296	100,29,975	103,08,209	106,05,651	108,70,792
Total number of slide collections	13,23,861	12,90,579	14,97,988	15,04,445	15,02,029	15,42,066	14,51,044	14,53,250	12,95,294
Total slide collections from active case detection (ACD), active passive case detection (APCD), and passive case detection (PCD)	10,74,360	10,46,358	11,99,805	12,24,777	12,19,274	12,48,011	12,09,868	12,52,851	11,84,601
Total positive cases	14,148	16,085	16,902	16,719	29,388	42,321	36,351	26,866	24,989
Total indigenous cases	8,825	10,032	8,942	7,293	17,231	22,784	22,005	16,758	16,614
Total imported cases	3,490	3,829	4,853	6,125	7,125	6,809	6,932	5,006	3,383
Total Plasmodium falciparum (Pf) cases	947	711	1,068	1,885	5,560	7,497	3,587	3,890	3,552
Total Pf indigenous cases	53	67	147	325	3,120	4,127	1,677	2,410	2,272
Total Pf imported cases	668	518	754	1,305	1,676	1,033	1,141	742	603
Total Plasmodium vivax (Pv) cases	13,158	15,364	15,825	14,772	23,379	30,922	32,705	22,922	21,407
Total Pv indigenous cases	8,570	9,965	8,791	6,960	14,071	17,367	20,313	14,322	14,326
Total Pv imported cases	2,786	3,302	4,069	4,785	5,413	4,618	5,759	4,254	2,744
Annual blood examination rate (ABER)			14.18	13.98	13.46	13.42	12.48	12.61	11.61
Annual parasite incidence (API)			1.99	1.9	3.24	4.54	3.75	2.71	2.45
Slide positivity rate (SPR)			1.12	1.11	1.95	2.74	2.51	1.85	1.93

Source: *Health Information Bulletin*, vol. 6, 1990

Table 3.10: Number of New Active Tuberculosis Case Detections and Number of Registered Patients under Treatment by Development Region, 1985 to 1987

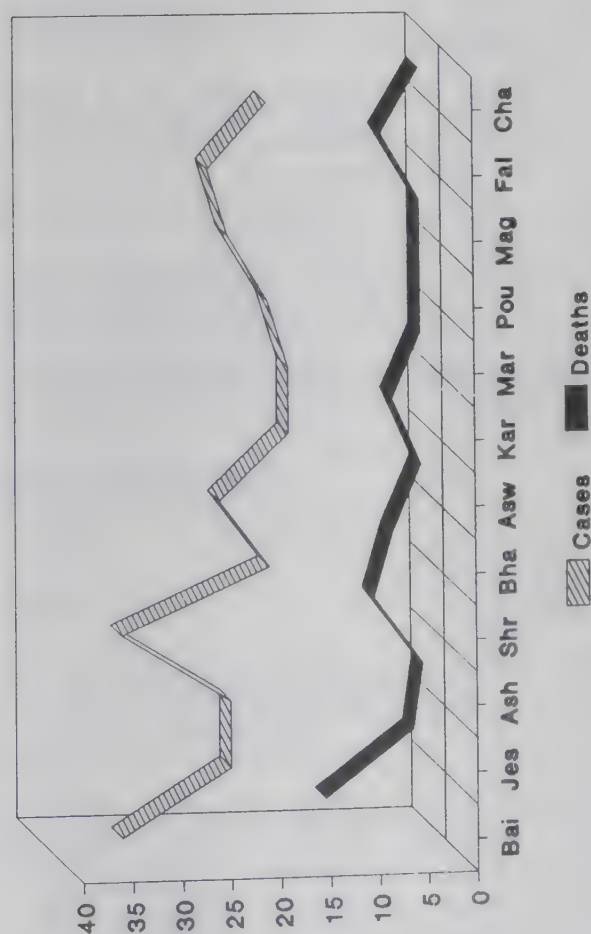
Development regions	1985		1986		1987	
	New ACF	TB pts. under treatment	New ACF	TB pts. under treatment	New ACF	TB pts. under treatment
Eastern	1,425	4,219	1,882	3,500	1,829	3,436
Central	1,706	4,908	1,570	2,767	1,428	3,786
Western	254	4,346	526	1,231	365	1,299
Mid-Western	615	1,914	563	967	384	1,180
Far-Western	217	944	165	490	258	825
TOTAL	4,217	16,331	4,706	8,955	4,264	10,526

Source: Tuberculosis Control Programme, Ministry of Health, September, 1988.

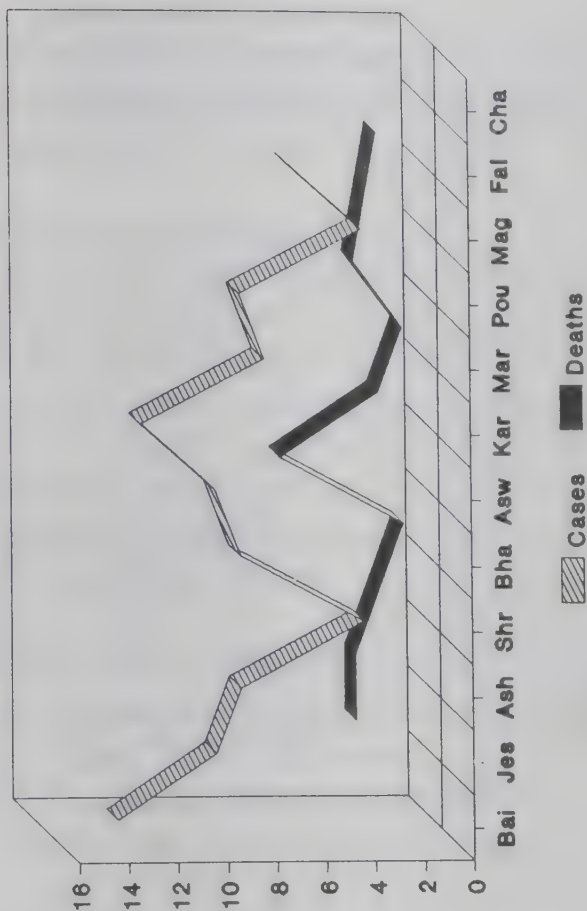
Figure 3.14

Number of Meningococcal Meningitis Cases and Deaths Reported by Four Hospitals in Kathmandu Valley

1985/86



1986/87

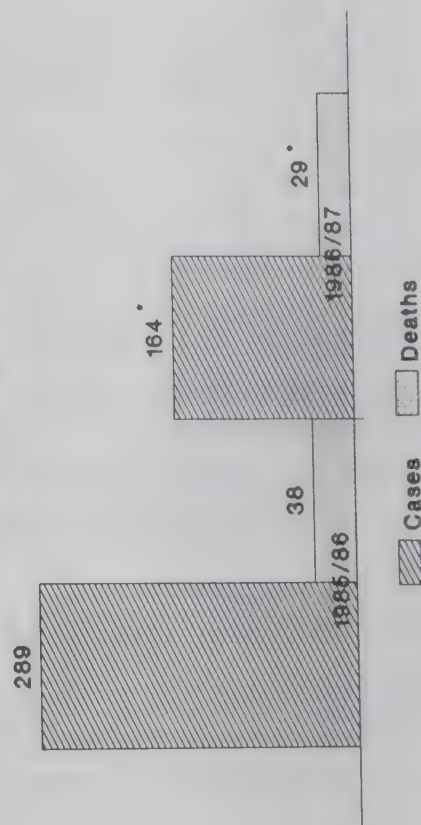


Bai = Baisakh
Shr = Shrawan
Kar = Kartik
Mag = Magh

Jes = Jestha
Bha = Bhadra
Mar = Marg
Fal = Falgun

Ash = Ashadh
Asw = Aswin
Pou = Poush
Cha = Chaitra

Total of 12 Months



• An additional 67 cases and 6 deaths were included in the totals but were not distributed by months.

Source : Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All by year 2000 Strategies HMG/WHO Management Group, Nepal, 1987.

Leprosy: Leprosy is another public health problem in the country, rampant in 13 districts of the Terai, with 80 per cent of the total cases being the paucibacillary form of leprosy. In the mountainous area of the country at altitudes ranging between 1,000 to 8,000 ft, the prevalence of the disease has been found to be moderate with the lepromatous form of the disease accounting for between 30 and 35 per cent of the cases. In the main Himalayan range the prevalence of leprosy is low but the lepromatous form accounts for between 45 and 60 per cent of the cases in certain pockets. The prevalence of the disease in the northern districts of the eastern hills has been found to be low. The total number of registered leprosy patients under treatment by region from 1985 to 1987 is presented in Table 3.11.

Diseases Relating to Water and Food

As mentioned earlier, the lack of potable water, effective food hygiene and sanitation programmes have given rise to a number of diseases like diarrhoea, dysentery, hepatitis, and gastrointestinal and parasitic diseases, which sometimes even take an epidemic form.

Hepatitis: A survey conducted in the five development regions of Nepal detected 99 per cent anti-HAV positives in the population. By the age of 5 years, almost everyone in the country acquires immunity against HAV. The prevalence of HBV infection in the community, determined by assaying anti-HBS, was positive in 59 per cent. It was also found that 91 per cent of the acute sporadic viral hepatitis cases were of NANB virus types and enterically transmitted.

Typhoid: Although this affects people primarily during the dry season, it may be said to be a major health hazard.

Gastroenteritis: This is also a regular occurrence among the Nepalese. The incidence of repeated infections, especially among children, warrants its classification as one of the major health problems in Nepal.

Diarrhoea: Diarrhoea is a major killer of children under 5 years of age in Nepal. It is estimated that every child suffers from diarrhoea 6.2 times a year: a total of approximately 17 million cases of diarrhoea. About 44,000 children die of diarrhoea each year in Nepal. Figures 3.15 to 3.17 provide information on diarrhoea associated deaths among children below 5 years, estimated diarrhoeal morbidity rate and estimated diarrhoea associated death rate.

Lack of adequate water, almost no sanitation facilities and poor personal hygiene are some of the major constraints that heighten the problem of diarrhoeal diseases in the country. If an assured potable water supply and proper sanitation facilities could be provided, more than 50 per cent of the problems associated with diarrhoea could be overcome.

Parasitic Infestations: In Nepal, intestinal parasitism like ascaris, ankylostoma (hookworm) and *trichuris trichura* affects about 80 per cent of the total population and is a major health problem among children. Table 3.12 provides information on the prevalence of intestinal parasites.

Acute Respiratory Infection (ARI): Acute respiratory infection is one of the major causes of death among infants and accounts for 33 per cent of all

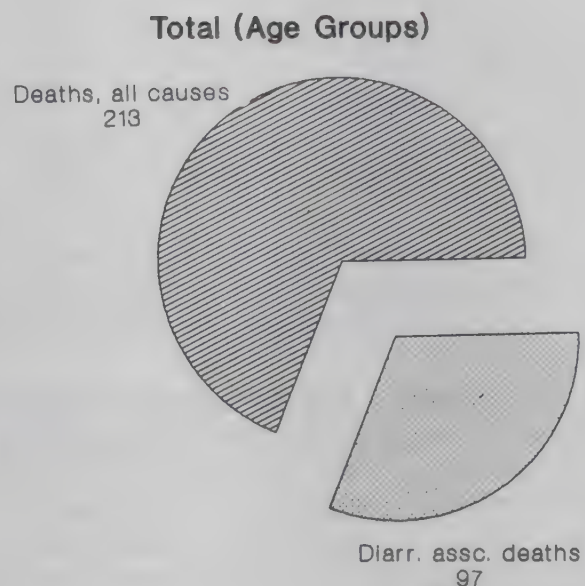
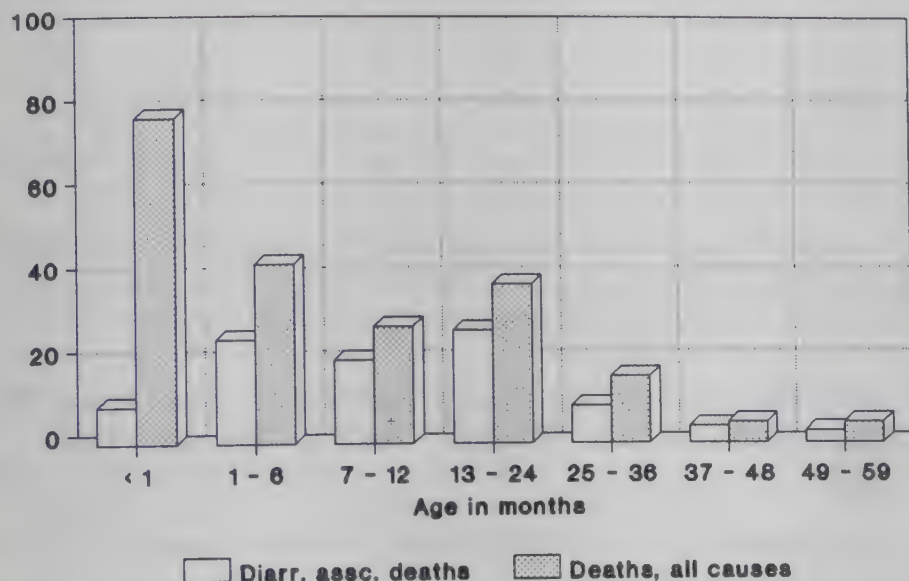
Table 3.11: Trend of Total Registered Leprosy Patients under Treatment by Region, 1985 to 1987

Development regions	1985		1986		1987	
	Registered patients		Registered patients		Registered patients	
	treatment	(%)	treatment	(%)	treatment	(%)
Eastern	6,672	20.62	7,237	25.32	7,315	23.33
Central	12,797	39.55	9,597	33.57	11,904	37.97
Western	6,210	19.19	5,359	18.75	5,509	17.57
Mid-Western	5,187	16.03	4,623	16.17	4,402	14.04
Far-Western	1,489	4.60	1,771	6.20	2,220	7.08
TOTAL	32,355	100.00	28,587	100.00	31,350	100.00

Source: Leprosy Control Section, Ministry of Health, September, 1988.

Figure 3.15

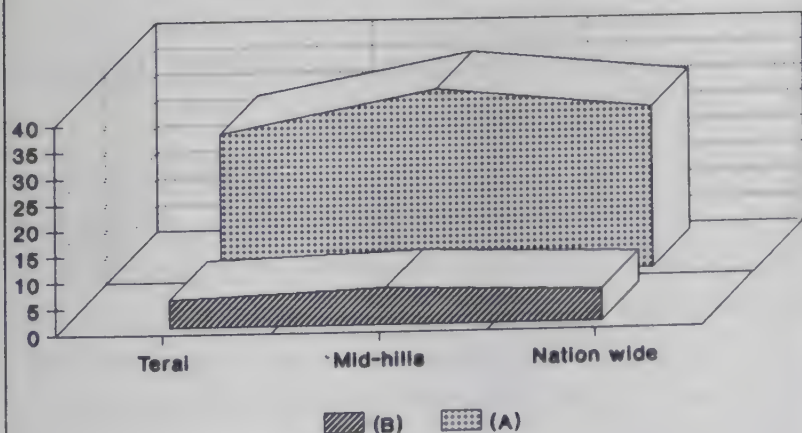
Number of Deaths and Number of Diarrhoea Associated Deaths among Children below Five Years of Age, 1985



Source : Nepal Nutrition Status Survey (Jan-May, 1975)

Figure 3.16

Est. 2-week Diarrhoea Morbidity Rt.(A) & Est.No.of Diarr.Episodes p/yr p/child(B)*

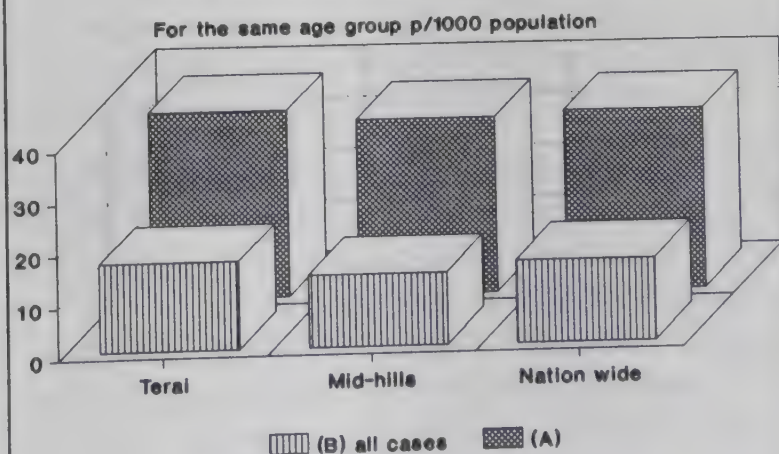


Source: Report of the National Diarrhoea Disease Survey, May-June 1986, March 1986.

Note: Seasonally adjusted est. based on the rate of admission to Kanti Hosp. for diarrhoeal diseases.

Figure 3.17

Est. Death Rate among Children Under 5yrs (A) & Est. Diarr. Ass. Death Rate (B), 1985



Source: Report of the National Diarrhoea Disease Survey, 05 & 06-1985, 03-1986.

infant deaths. A pilot study conducted in a south-western village in Kathmandu covering 1,019 children revealed an ARI-specific mortality rate of 108 per 1,000 infants and 42.7 per 1,000 in the age group 1 to 5 years. On the other hand, a geographically based study indicated that 37.8 per

cent of admissions are due to ARI with a case fatality rate of 9.8 per cent. Table 3.13 provides information on deaths due to ARI among children below 5 years in a rural community of Kathmandu.

Vaccine Preventable Diseases: The six dreaded diseases of childhood which are in fact preventable

Table 3.12: Prevalence Rates for Intestinal Parasites Found in Samples Examined from Kaverpalanchok and Bhaktapur Districts, June 1979 to June 1981

District	No. of specimens examined	Positive for intestinal parasites		Positive for specific intestinal parasites					
				Ascaris		Hookworm		Trichuris trichura	
		No.	%	No.	%	No.	%	No.	%
Kaverpalanchok	8,611	7,432	86	4,625	54	3,482	40	2,199	26
Bhaktapur	4,295	3,898	91	3,256	76	306	7	1,743	41
Total	12,906	11,330	88	7,881	61	3,788	29	3,942	31

Source: Prevention and Control of Intestinal Parasites Through Primary Health Care Approach (A Case Study of Nepal), by Dr D.P. Upadhyaya, 1985 (unpublished), as cited in *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal. HMG/WHO Management Group, 1987.

Table 3.13: Deaths due to Acute Respiratory Infection among the Study Population Less than Five Years of Age in a Rural Community of Kathmandu Valley, January 1983 to January 1987

Research Phase	Period	Mid-year estimate of the study population	All causes		Deaths observed due to ARI		Due to ARI+ diarrhoea	
			No.	Rate/1000	No.	Rate/1000	No.	Rate/000
Pre-surveillance (Baseline)	Jan to Dec 1983	1,052	103	97.9	45	42.8	11	10.5
Surveillance	Feb 84 to Jan 85	987	64	64.8	20	20.3	13	13.2
Intervention	I Feb 85 to Jan 86	950	36	37.9	8	804.0	3	3.2
	II Fe 86 to Jan 87	940	38	40.4	2	2.1	8	8.5

Source: Acute Respiratory Infection among Infants and Young Children - Assignment Report by Henry M. Gelfand, MD, MPH, WHO, STC, 3-20 August, 1986, as cited in *Country Health Profile*, 1988.

through immunisation — diphtheria, pertusis (whooping cough), tetanus, poliomyelitis, tuberculosis and measles — contribute significantly to infant and childhood mortality and morbidity.

Dental Diseases: Dental diseases, especially dental caries and periodontal diseases, are increasing alarmingly in Nepal. As there are only 27 dentists (including six post-graduates), the services available for the entire population can only be insufficient.

Hard Drug Abuse: Drug abuse, although a psycho-social problem, later manifests itself as a health problem and appears to be spreading in Nepal. However, it is difficult to assess the exact magnitude primarily because the problem itself is little understood and data on drug abuse is negligible in the country.

Occupational Health: The non-agricultural sector of Nepal's economy is growing slowly but steadily, and with the onset of industrialisation, occupational diseases are gradually becoming apparent. However, there is as yet very little data on the various aspects of occupational hazards and health status.

Maternal Morbidity: In reporting data on morbidity in Nepal, there is a tendency to ignore the problem of maternal morbidity. Health problems arising out of pregnancy and childbirth are also a major area of concern requiring attention, and probably outnumber other problems in terms of severity and frequency (see Table 3.14).

Women's Health: In Nepal, almost every indicator, be it female literacy, female life expectancy, female infant mortality, female under-5 mortality,

Table 3.14: Maternal Morbidity: Five Leading Causes for Hospital Admissions During 1980-81 and 1983-84*

Cause	1980-81		1983-84	
	Per cent	Rank	Per cent	Rank
Complications arising out of pregnancy, childbirth and puerperium	25.1	1	47.5	1
Infectious and parasitic diseases	15.2	2	9.0	3
Injury and poisoning	10.3	3	7.4	4
Diseases of the digestive system	8.4	4	-	-
Diseases of the respiratory system	8.2	5	6.0	5
Symptoms, signs and ill-defined conditions	-	-	12.3	2
Total	67.2	-	82.2	-
Total number of admissions	28,061		39,095	

Note: * These cases accounted for 67 and 82 per cent, respectively, of the total number of admissions.

Source: *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal. HMG/WHO Management Group, 1987.

Table 3.15: Disability Prevalence Rates by Age, 1980 (in %)

Disability	Types	Age in years							Total
		Less than 5	5-14	15-25	26-39	40-59	60-74	75 & above	
1	2	3	4	5	6	7	8	9	10
Visual	Blind and visually handicapped	0.51	0.64	1.27	2.69	4.67	3.26	1.02	14.66
	Blind in one eye and visually handicapped	0.00	0.89	1.09	2.05	5.12	1.66	0.83	11.64
	Total	0.51	1.53	2.36	4.74	9.79	4.92	1.85	25.70
Auditory	Deaf and hearing handicapped	0.32	6.14	4.03	3.26	4.54	2.24	1.34	21.87
	Deaf-mute	0.19	5.19	2.81	1.85	1.08	0.32	0.07	11.51
	Total	0.51	11.33	6.84	5.11	5.62	2.56	1.41	33.38
Upper limb		0.51	2.56	2.05	2.81	2.62	0.96	0.45	11.96
	Lower limb	0.83	4.60	3.01	3.90	3.45	1.66	0.77	18.22
	Head, neck and spine	0.19	0.51	0.51	0.70	1.54	0.45	0.38	4.28
Mental retardation		0.07	1.73	1.98	1.47	1.02	0.19	0.00	6.46
	Total	1.60	9.40	7.55	8.88	8.63	3.26	1.60	40.92
GRAND TOTAL		2.62	22.26	16.75	18.73	24.04	10.74	4.86	100.00

Source: Report on the Sample Survey of Disabled Persons in Nepal, 1980.

Table 3.16: Physical Disability Prevalence Rates by Type and Sex in Hilly/Terai Regions, 1980 (in %)

Disability	Type	Hills			Terai			Total both sexes
		Male	Female	Total	Male	Female	Total	
Visual	Blind	4.20	4.44	8.64	7.22	5.09	12.31	10.29
	Visually handicapped	1.40	0.70	2.10	4.24	1.56	5.80	3.77
	Blind in one eye	4.90	3.38	8.28	4.81	2.26	7.07	7.74
	Visually handicapped in one eye	1.75	1.28	3.03	3.39	1.56	4.95	3.90
	Total	12.25	9.80	22.05	19.66	10.47	30.13	25.70
Auditory	Deaf	4.67	3.03	7.70	8.76	3.54	12.30	9.78
	Hearing handicapped	8.87	6.77	15.64	4.53	3.25	7.78	12.09
	Deaf-mute	7.23	3.39	10.62	6.79	5.80	12.59	11.51
	Total	20.77	13.19	33.96	20.08	12.59	32.67	33.38
Upper Limb	Both arms severed	0.00	0.00	0.00	0.00	0.28	0.28	0.13
	Left arm severed	0.35	0.12	0.47	0.42	0.00	0.42	0.45
	Right arm severed	0.58	0.24	0.82	0.14	0.00	0.14	0.52
	Both arms crippled	1.63	0.70	2.33	3.11	0.85	3.96	3.07
	Left arm crippled	2.10	1.28	3.38	1.13	0.57	1.70	2.62
	Right arm crippled	1.75	1.05	2.80	1.28	0.84	2.12	2.49
	Finger defective	2.57	1.28	3.85	0.57	0.71	1.28	2.68
	Total	8.98	4.67	13.65	6.65	3.25	9.90	11.96
Lower Limb	Both legs severed	0.23	0.00	0.23	0.28	0.28	0.56	0.38
	Left leg severed	0.58	0.12	0.70	0.28	0.28	0.56	0.64
	Right leg severed	0.82	0.12	0.94	0.99	0.57	1.56	1.22
	Both legs crippled	5.84	2.32	8.16	5.38	1.98	7.36	7.80
	Left leg crippled	2.92	1.52	4.44	2.26	1.98	4.24	4.35
	Right leg crippled	2.45	1.52	3.97	2.41	1.27	3.68	3.83
	Total	12.84	5.60	18.44	11.60	6.36	17.96	18.22
Head, neck and spine	Head, neck and spine deformed	3.15	1.63	4.78	2.55	1.13	3.68	4.28

Source: Report on the Sample Survey of Disabled Persons in Nepal, 1980.

maternal mortality, maternal morbidity, or rate of utilisation of health care services by females, shows a *fundamental social bias and inequity* in favour of men. It is also found that female education directly affects family size, child health and utilisation of health services. As mentioned earlier, the maternal mortality rate in Nepal is one of the highest in the world (850 per 1,00,000). Is it not tragic that so many women die giving birth to new life? With the advances we have made in knowledge, most of these deaths and much of the suffering could be

avoided and at relatively little cost. If information about safe motherhood were made available, the risks of pregnancy could be drastically reduced.

Disability

As mentioned earlier, pertussis (whooping cough), diphtheria, and poliomyelitis contribute significantly to infant and childhood mortality and morbidity, while tuberculosis is prevalent in almost all parts of the country and among all age groups. This holds true for both the contagious and non-

contagious forms of leprosy as well. Even if these and other problems such as the grossly under-reported prevalence of Japanese encephalitis, meningococcal meningitis, chronic ophthalmological and ENT pathologies like chronic conjunctivitis, otitis media, and the high incidence of accidents and injuries do not result in death, they do result in a significant number of disabilities. Nutritional deficiencies, particularly micro-nutrient deficiencies of iodine (cretinism or arrested

physical and mental development with dystrophy of bones and soft tissues, deaf-mutism), vitamin A (blindness from xerophthalmia), iron and folic acid, add to this disproportionately large pool of seriously disabled persons in Nepal. This significantly affects the country's economy, both in terms of the direct costs of rehabilitation and care of the affected persons, as well as in terms of lost productive potential. Tables 3.15 to 3.18 portray the dismal picture of disability in Nepal today.

**Table 3.17: Estimated Number of Cases of Bilateral and Unilateral Blindness, Nepal, 1979
National Ophthalmological Survey**

Cases	Type	Bilateral		Unilateral	
		Number of estimated cases	(%)	Number of estimated cases	(%)
Corneal blindness	Smallpox	2,610	2.2	10,089	4.3
	Trachoma	2,822	2.4	13,039	5.6
	Other infection	3,305	2.8	22,920	9.8
	Trauma	2,853	2.4	31,870	13.6
	Malnutrition	1,095	0.9	2,124	0.9
	Total	12,685	10.7	80,042	34.2
Other blindness		1,04,938	89.3	1,53,570	65.8
GRAND TOTAL		1,17,623	100.0	2,33,612	100.0

Source: *Basic Information/Indicators to Support Implementation of Basic Minimum Needs and Health for All/2000 Strategies*, Nepal. HMG/WHO Management Group, 1987.

Table 3.18: Mental Retardation Prevalence Rates by Sex and Degree of Retardation in Hilly and Terai Regions, 1980 (in %)

Degree of mental retardation	Hills			Terai			Total both sexes
	Male	Female	Total	Male	Female	Total	
Severe	1.17	0.70	1.87	0.14	0.57	0.71	1.35
Moderate	2.57	1.86	4.43	1.56	2.20	3.68	4.09
Borderline	0.58	0.24	0.82	1.13	0.14	1.27	1.02
Total	4.32	2.80	7.12	2.83	2.91	5.66	6.46

Source: Report on the Sample Survey of Disabled Persons in Nepal, 1980.

4.

Nutrition Status

Of the various problems facing Nepal's development, malnutrition or undernutrition is one of the most dominant and is closely interrelated to the country's difficult economic situation.

The problem of malnutrition is a culmination of the constraints on food, the purchasing power of the people, and the number of people sharing the available food and money — i.e., food production, purchasing power, and population growth. Besides, several other indirect factors compound the problem. Therefore, malnutrition can no longer be looked upon as a problem of the health sector alone, or as a problem resulting from food deficiency alone. Its manifestation and consequences are both diverse and alarming. Hence, malnutrition must be seen as both a cause and consequence of poverty and social inequality, as a national problem hindering all efforts towards the development of human resources.

Any analysis of the nutritional status of Nepal's population must take into account several direct and indirect factors: production and availability of food; purchasing power of the people; level of nutrition knowledge; food consumption patterns; distribution of income; levels of employment; unsafe drinking water; poor sanitation facilities; illiteracy and ignorance; and, non-availability of health services. Therefore, any attempt to combat malnutrition must focus on getting to the root of these causative factors.

There are few comprehensive studies and surveys on the nutritional status and the conditioning factors responsible for the prevalence of malnutrition in Nepal. However, during the last two-and-a-half decades some studies have been conducted with varying precision and using different methodologies to assess the nutritional status of the people of Nepal. These have helped us to comprehend the magnitude and seriousness of the problem and

some of the prominent underlying causes. These surveys, conducted in the mid-1970s and 1980s (including the last countrywide national nutrition survey of 1975) indicate that *malnutrition is a very serious problem in Nepal*.

Over 35 per cent of the population of Nepal consumes less than the estimated minimum calorie requirement. Food security is complicated by a high incidence of infectious and parasitic infestations. According to national statistics, 51.2 per cent of children under 6 years of age are stunted (less than 90 per cent height for age), with some local studies (Martorell and Moock, 1984) putting the rate as high as 65 to 70 per cent. About 10 to 15 per cent of the children in Nepal are estimated to suffer from severe Protein Energy Malnutrition (PEM), of whom 6.7 per cent are wasted (less than 80 per cent weight for height with atrophied adipose and muscle tissues).

Malnutrition is as severe a problem in Nepal as it is in the African Sahel during periods of drought. Besides Protein Energy Malnutrition (PEM), Nepal has very high rates of micro-nutrient deficiencies. The country falls within the Himalayan goitre belt and ranks second highest in the world in terms of the incidence of iodine deficiency. Consequently, Nepal has very high levels of goitre, the mean prevalence rate being 56.7 per cent. Some localised pockets have even higher rates: Sinja valley in the Mid-Western region (83.9 per cent) and Bajuna in the Far-Western region (73.9 per cent). Cretinism (arrested physical and mental development with dystrophy of bones and soft tissue) accounts for 10 per cent of the problem and deaf-mutism is not uncommon in remote areas. Iron deficiency anaemia affects most pregnant women (prevalence rate about 40 to 45 per cent among pregnant women, and 30 per cent for the total population). Xerophthalmia due to vitamin A

deficiency is widespread and is a major cause of blindness. It is estimated that there are roughly over 3.5 lakh cases of bilateral and unilateral blindness in Nepal. There is also evidence to suggest that vitamin A deficiency (4 to 5 per cent prevalence in children under 6 years) also contributes to acute weight loss and wasting (often precipitated by diarrhoea, measles, tuberculosis and other infections, more common during the monsoon period).

FACTORS LEADING TO MALNUTRITION IN NEPAL

Production and Availability of Food

Only about 18 per cent of Nepal's total land is cultivable and the potential for increasing the amount of land under food is limited. Particularly in the hills and mountains, there is little scope for increasing crop land and in fact some land currently under crops would be more productive as forests or grazing land. In the Terai region, there is still some scope for increasing crop land, but only at the expense of the forests, the environmental impact of which has not been determined.

Of the total cultivated land in the hills and mountains, only 31 per cent is under irrigation, the remaining 69 per cent depends entirely on the vagaries of the monsoon.

Nepal is a country of small farmers with minimum landholdings. The average plot size is small — just over 1 hectare in the Terai and under 1 hectare in the hills. Although it appears that almost all hill families have some agricultural land, it is by no means enough to produce even their subsistence requirements. Twenty per cent of rural households in the Terai can be considered landless as they are unable to grow a significant portion of their cereal needs.

While the majority of the population (over 56 per cent) lives in the hills and mountains, almost 61 per cent of the total food is produced in the Terai region. The movement of surplus foodgrains from the Terai to food-deficit hilly and mountainous regions is both difficult and extremely expensive.

The foodgrain production in Nepal has increased by about 9 per cent over the last 15 years. However, most of the increase in the total production has been due to an increase in the area cropped and cropping intensity, rather than to an increase in yield. In fact, yields of two major crops — rice and maize — have either remained stagnant or de-

clined over this period. This negative trend is more marked in the 15 hilly districts which are being continuously affected by soil erosion and landslides.

Population growth has outstripped food production in most areas of the country, particularly in the Terai, the major surplus area.

Figure 4.1 reveals that food production can barely keep pace with population growth, resulting in enhanced food requirement. In 1975, only 32 out of 75 districts had a food deficit while the figure has gone up to 53 today.

While food security is not necessarily linked to food self-sufficiency, the two are closely related in Nepal. Firstly, because agriculture accounts for over 90 per cent of rural incomes, for most people agricultural production and personal income is synonymous, particularly in the remote areas. Secondly, in many areas, particularly in the hilly and mountainous regions, transportation costs are so high that food brought in is unaffordable at most income levels, making local production the primary determinant of supply and prices.

National agricultural production is currently too low to meet consumption needs: total production of foodgrains meets only 90 per cent of the requirement and is fast declining. Foodgrain production amounts to about 4.4 million tons annually — equivalent to about 165 kg of food per capita (see Table 4.1), or about 1,550 calories per person per day. With the production of other foods such as milk, vegetables and meat, this amounts to an average output of about 1,930 calories per

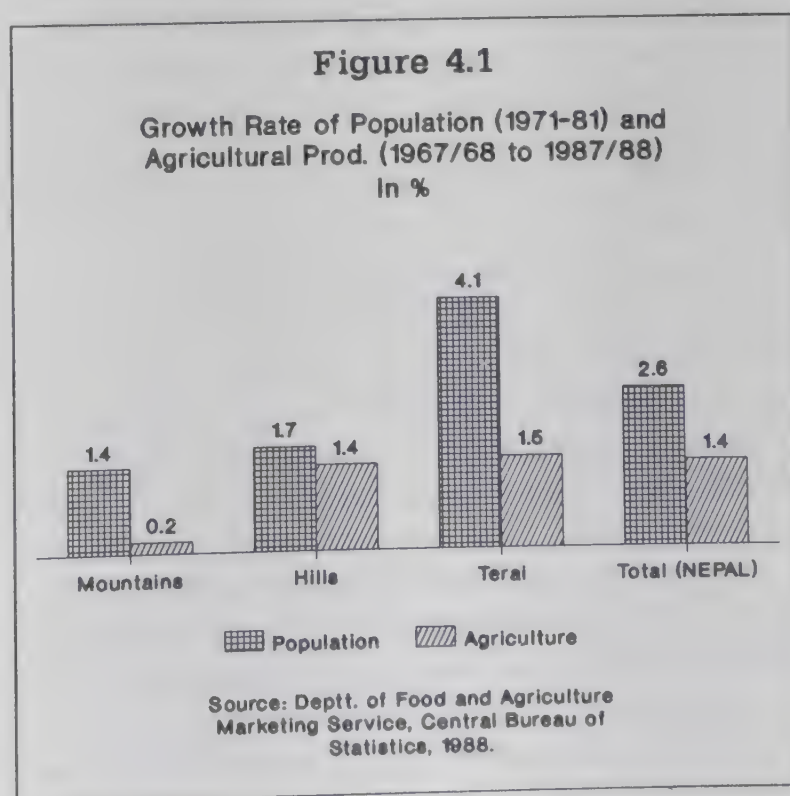


Table 4.1: Trends of Estimated Per Capita Food Availability by Region and Geographical Belts, 1985 and 1986 (in kg)

Development Region	1985				1986			
	Hill	Mountain	Terai	Total	Hill	Mountain	Terai	Total
Eastern	110.20	150.42	177.82	148.14	120.14	152.86	145.10	145.48
Central	69.85	123.43	236.28	173.73	107.75	127.29	196.49	158.27
Western	169.01	126.82	255.67	166.79	184.64	127.78	198.67	151.66
Mid-Western	65.75	110.70	238.41	148.82	73.41	124.97	190.05	143.59
Far-Western	83.55	72.48	444.01	135.74	89.04	81.08	208.02	130.79

Source: *Country Health Profile*, 1988.

person per day, as against an estimated requirement of 2,250 calories. The percentage of households consuming less than the recommended level of food is the highest in the rural hills (47 per cent), followed by the urban areas (about 40 per cent) and the mountainous regions (31 per cent). Even in the Terai, a food surplus region, 23 per cent of the households do not consume enough food to meet their requirements. While in theory these shortfalls could be compensated by imports, the net flow of foodstuffs has tended to be in the other direction — out across the Indian border (unofficial export). In any event, most individuals *do not have the resources to purchase* additional food even if it were available.

Poverty and Low Purchasing Power

As mentioned earlier, there exists a close relationship between poverty and malnutrition. The incidence of poverty in Nepal is estimated at over 42 per cent, even by one of the most conservative definitions of the poverty line adopted by the National Planning Commission (NPC) of Nepal.¹ Adopting a more reasonable and widely used measure, i.e., the international definition of absolute poverty,² the proportion of absolute poor in the country reaches a figure of over 70 per cent nation-wide, and almost 80 per cent in the hills. No doubt the number of absolute poor in Nepal will vary with the norms used and definitions followed,³ and the percentage of poor will move a few digits either way depending on the methodology or definition used. However, these definitional problems do not change or mask the stark fact that *the incidence of absolute poverty is very high in Nepal*. Thus, the people of Nepal lack the resources to buy adequate amounts of food although rice is the

preferred staple food eaten with pulses — *dall bhat* — the poor do not eat as much rice because they cannot afford it as it is more expensive than maize and other coarse grains, their low purchasing power prevents them from meeting their daily minimum calorie/nutrient requirement, and they are forced to live in miserable environmental conditions with little or no access to protected drinking water (over 70 per cent do not have access to safe unpolluted water) and sanitation facilities (less than 2 per cent have access). All this puts them at risk of various infections (including diarrhoeal episodes) and parasitic infestations (roundworm and hookworm infestations are widespread; according to some reports over 80 per cent of children in some pockets suffer from moderate to severe roundworm infestation and over 60 per cent of the population — both adults and children in the Terai — are reported to suffer from hookworm infestation), which in turn aggravate the already severe problem of malnutrition, especially among children.

Population Growth

One of the important factors contributing to both poverty and malnutrition in Nepal is the rapid increase in population — which has doubled in the last 20 years and will double again by 2020 AD. The population growth rate of 2.7 per cent per annum

¹ Poverty line is defined (by the National Planning Commission) on the basis of income needed to supply minimum calorie requirement (estimated in Nepal at 2,250 calories per day). In 1988-89 prices, this was Rs 210 per person per month in the hills and Rs 197 in the Terai.

² According to the international definition, income less than US \$ 150 per capita per annum is considered the cut-off point for absolute poverty.

³ A third definition of the poor according to Lipton is those whose food expenditure absorbs 70 per cent or more of total expenditure.

has eroded the limited gains which had been made in GDP and food production.

Nepal's population is currently estimated to be 19 million, a figure too large for the current economic base, as is evidenced by the tremendous pressure on land and the very low per capita food balances and national income.

As mentioned earlier, population growth has exceeded food production in most areas of the country. The current average population density is about 6.2 persons per hectare of cultivable land and ranges up to 11 persons per hectare of cropped land in many parts of the hill region. Population pressure is also resulting in severe environmental degradation, and this in turn is aggravating land shortages as productive land is increasingly lost to the ills of erosion and deforestation.

Unless steps are taken to check population growth, it will have deleterious consequences on the already grave problem of poverty and will be a major deterrent to the improved nutritional status of the population.

Socio-Cultural Factors

Socio-cultural factors influence the food consumption patterns of the population, which in turn has a significant impact on nutritional status. The bulk of the Nepalese diet, unlike the Western diet, consists primarily of any one cereal: rice, maize or any other coarse grain (in the hill/mountainous areas). Most people, especially the poor, receive over 85 per cent of their caloric requirement from grains alone. Such an imbalanced dietary intake poses a nutritional risk and due to the paucity of other food items in the diet, certain foods rich in vitamins (especially vitamin A) and minerals are denied to the body, resulting in deficiency disorders. Several other factors also impinge upon the nutritional status of an individual. These include breast-feeding and weaning practices (timing, duration, quantity and type of weaning foods), intra-familial/household food distribution (male vs. female), child-feeding practices, food taboos, etc.

While all these factors might not apply to all communities at all times, they highlight the fact that given the marginal status of households with regard to food availability, any one of the above mentioned factors can determine whether a person (more specifically a child) will be well-nourished or malnourished.

Women, who play an important role in a family's health and nutrition, are particularly subject to

considerable stress. The average age at marriage is less than 16 years (although by law marriage is not permitted before 16 years), and by 16 most women are either pregnant or lactating. The average number of children a woman gives birth to has been computed at about 6 (the highest in South Asia), and the burden of work for adult women exceeds that of adult men by about 25 per cent. Girls between the ages of 10 and 14 years have a work burden double that of boys of the same age group.

Moreover, an important factor that is assumed to have a significant impact on nutritional status is maternal education, although no direct association has thus far been established. In Nepal, while two-thirds of the population is still illiterate, of particular concern is the fact that literacy among females is only 11.5 per cent, and is lower still in the mountains, being only one-third that in the plains.

Thus, inadequate diets (lack of available food), poverty (lack of purchasing power), female illiteracy, insanitary surroundings leading to a high rate of infections and poor access to health care continue to have an adverse impact on malnutrition and nutritional disorders in Nepal.

It is evident from the foregoing analysis that unless the problem is perceived from a *holistic* perspective, little can be done towards alleviating the problem of malnutrition.

The four major nutritional problems which beset the population of Nepal are Protein Energy Malnutrition (PEM), iodine deficiency disorders (including goitre and cretinism), vitamin A deficiency and iron deficiency anaemia. Nutrition surveys carried out in Nepal provide an indication of the magnitude and nature of these problems. Results of some of these surveys are presented below.

Results of Nutrition Survey Conducted in Nepal

A review of the information available on the nutrition status of children has shown that the first attempt to collect information on the nutritional status of children was made by Shah and Worth in 1965-66, under the auspices of the WHO. This survey, called the Nepal Health Survey (NHS), found 54 cases of clinical undernutrition (weight less than 80 per cent of Stuart Meredith reference median) among 1,333 children in the age group 0 to 9 years, a prevalence rate of 4 per cent. This was perhaps an underestimate of the problem of malnutrition.

In 1974, Pourbaix conducted a more precise assessment. In this survey, conducted on a sample of 1,042 children from 17 districts in the age group 6 to 72 months, weight for age, weight for height and other clinical criteria were used to grade nutritional status.

Both surveys provided some of the earliest indications of the magnitude of the problem of malnutrition in Nepal. In 1975, a nation-wide nutrition survey was carried out jointly by USAID and His Majesty's Government of Nepal on 6,562 children between 0 and 72 months of age. Both anthropological and clinical criteria were utilised to assess the grades of malnutrition. The samples were taken from 221 sites representing variations by region and terrain. This survey is regarded as the only nationally representative survey performed thus far in the country, and provides valuable information with respect to the nutritional status of the children of Nepal.

The survey (measured by different indicators) revealed (see Figure 4.2) that 51.9 per cent of children under 6 years of age were stunted (with height for age less than 90 per cent, Gomez) and 6.8 per cent wasted (weight for height less than 80 per cent). Only 7.3 per cent of the children between 6 months and 6 years of age could be considered normal, using the weight for age standard, nearly 50 per cent (49.9 per cent) could be classified as suffering from moderate or severe malnutrition (less than 75 per cent of the standard weight for age, Gomez II and III).

The same study showed a marked decline in

nutritional status of these children once they reached 12 months of age or more (see Figures 4.5 and 4.6). This decrease in nutritional status was probably due to the introduction of solid foods which increases the exposure to infection. In addition, the caloric density of foods introduced was perhaps very low, particularly among the poor who consume very low levels of pulses or fats.

The 1975 National Nutrition Survey also reported a higher incidence of wasting in the Terai and of stunting in the hills and mountains. The Far-Western and Mid-Western regions witnessed the more severe prevalence of malnutrition.

A few localised surveys followed the national survey; all these indicate a high rate of malnutrition in children in the 6 to 36 months age group. Five to 15 per cent of the children suffer from weight deficits exceeding 40 per cent.

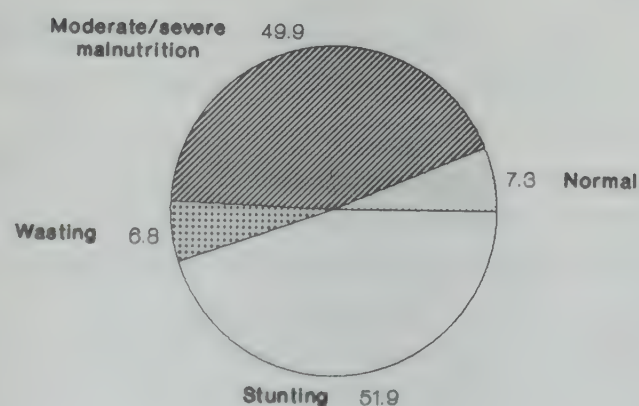
Some studies have been conducted to assess the effects of seasonal variation on PEM. Studies carried out at Bara and Rautahat in two seasons, October 1977 and April 1978, have served to highlight striking seasonal swings in the incidence of malnutrition in children (see Figure 4.3).

In Eastern Nepal, the prevalence of malnutrition in children was found to be highest in the pre- and early monsoon seasons when food is scarce and labour in great demand, putting more pressure on mothers to leave their young infants in the care of older siblings. During this season, diarrhoea and infectious diseases were also found to be most common. The same pattern was also observed in two Terai districts of Bara and Rautahat where the highest prevalence of malnutrition in children was seen in the pre-harvest season.

In 1983, a study was conducted in a village panchayat of Bhaktapur district under the joint collaboration of NEPAS and the Nutrition Cell of the Ministry of Health. The results of this survey and those of the Pourbaix (1974) and HMG/USAID surveys (1975) are presented in Figure 4.6. A more recent survey was also conducted in 1986 by New ERA as a baseline survey for the Joint Nutrition Support Programme in five districts of the country (three hill, one Terai and one inner-hill): Sindhupalchok, Makwanpur, Gorkha, Syangja and Nawalparasi (see Figures 4.7, 4.8, 4.9 and Table 4.2). The surveys of 1974-75 and 1983 and 1986 provide valuable data on nutrition status at two points of time separated by almost 10 years. Despite differences with respect to coverage and methodology, the two could be compared keeping in view the

Figure 4.2

Prevalence of PEM Among 6562 Children in the Age Group of 6m to 6yrs in %, 1975

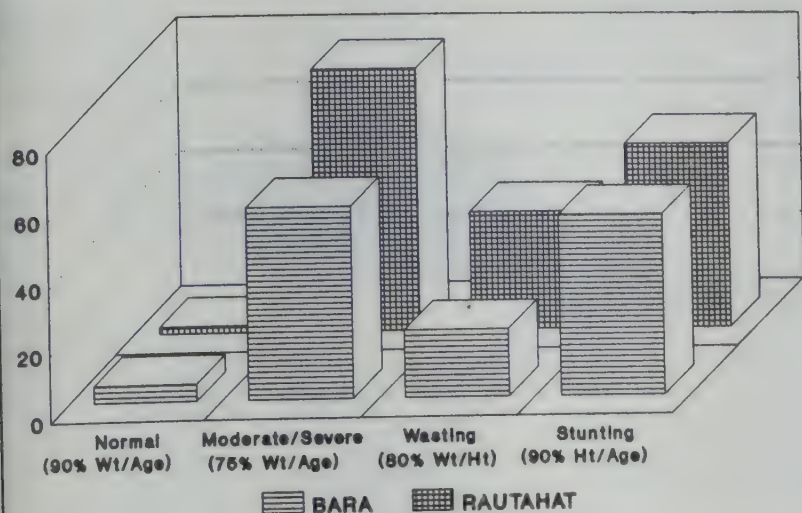


Source: Joint Nutrition Support Program. In Nepal, Feb. 1984, HMG/UNICEF/WHO.

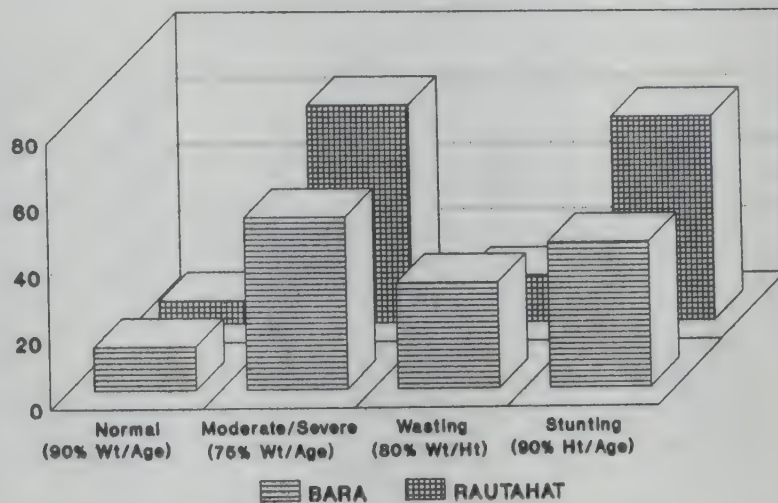
Figure 4.3

**Nutritional Status of 345 Infants/Children, 6 Months to 1 Year of Age,
as Measured by Different Indicators (%)**

October 1977



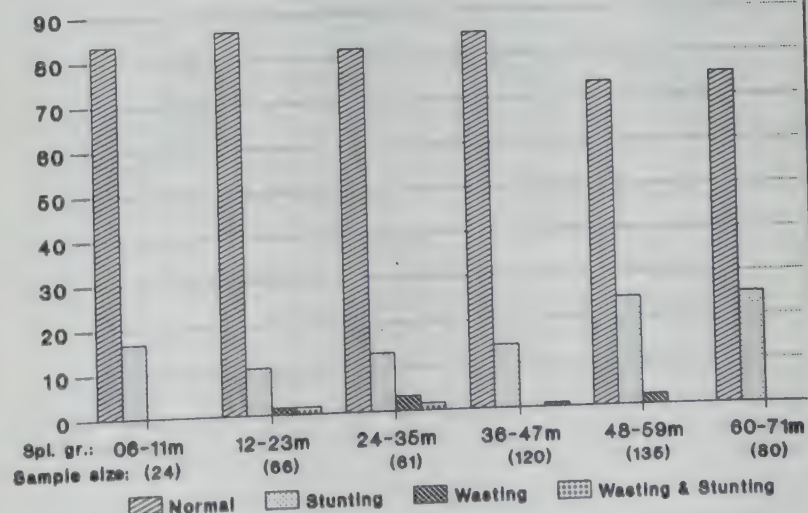
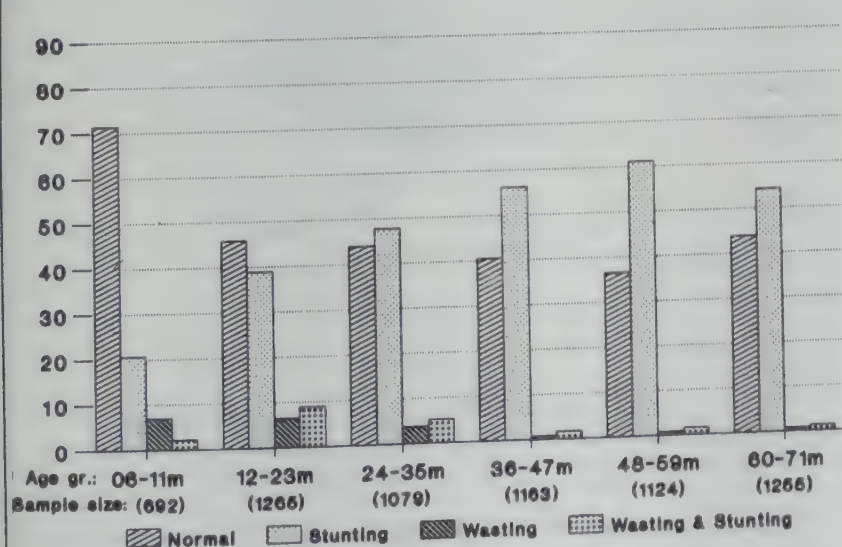
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Source : Joint Nutrition Support Programme in Nepal, February 1984, HMG/UNICEF/WHO

Figure 4.4

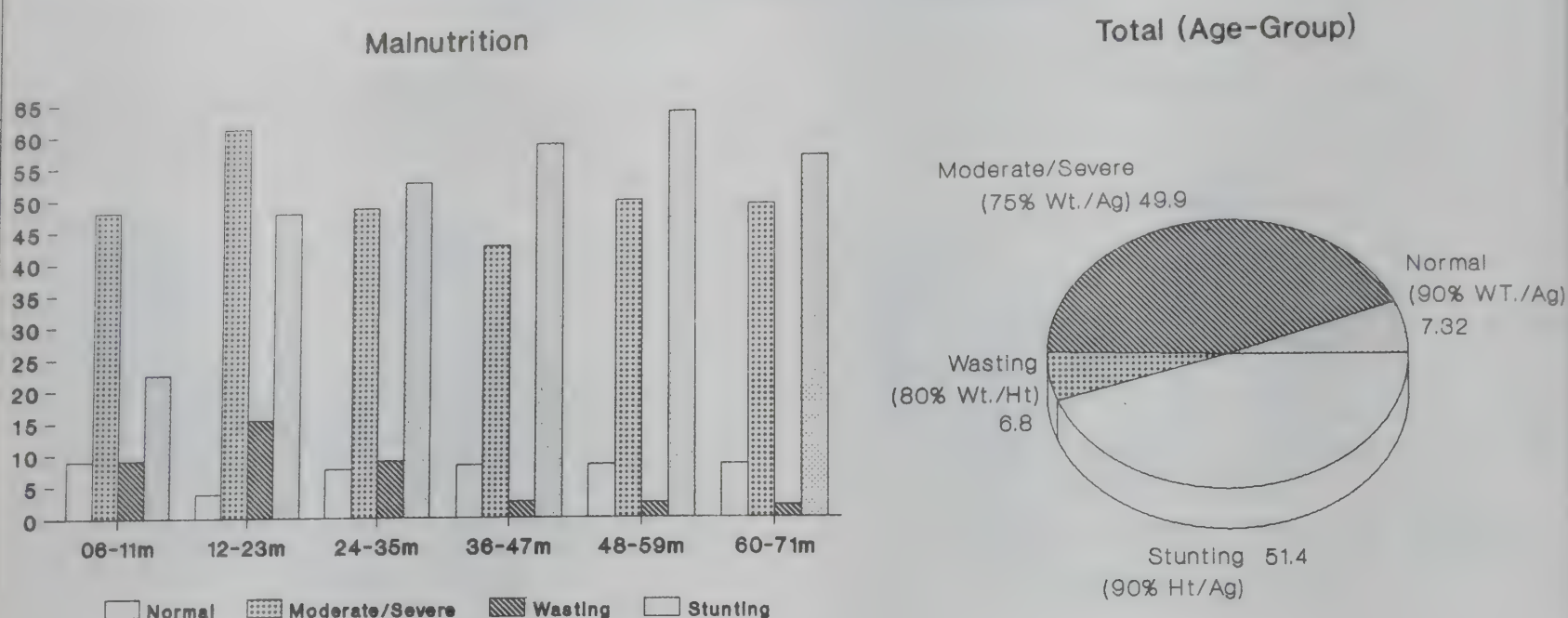
**Age Specific Percentage Distribution by Classification of Stunting and Wasting
for Nepal Survey Population and Special Group, 1975**



Source : Nepal Nutrition Status Survey (Jan-May, 1975)

Figure 4.5

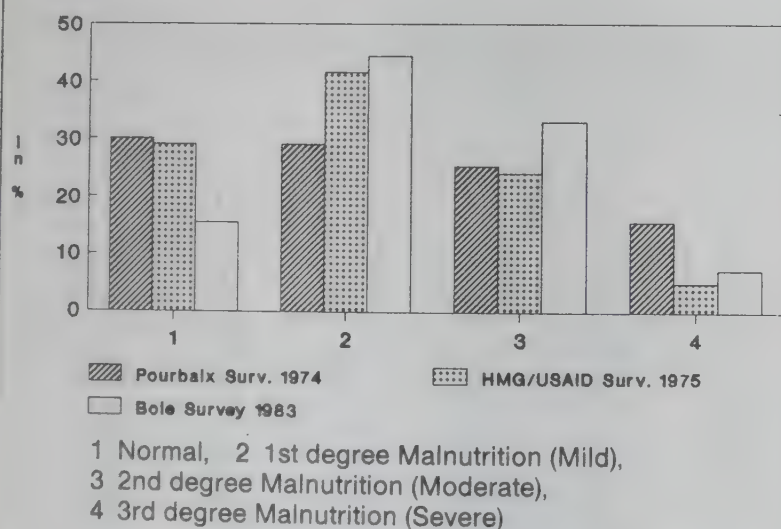
Age Specific Prevalence Rate of Malnutrition Among 6,562 Children of Rural Nepal, 1975 (in %)



Source : Joint Nutrition Support Programme in Nepal, February 1984, HMG/UNICEF/WHO.

Figure 4.6

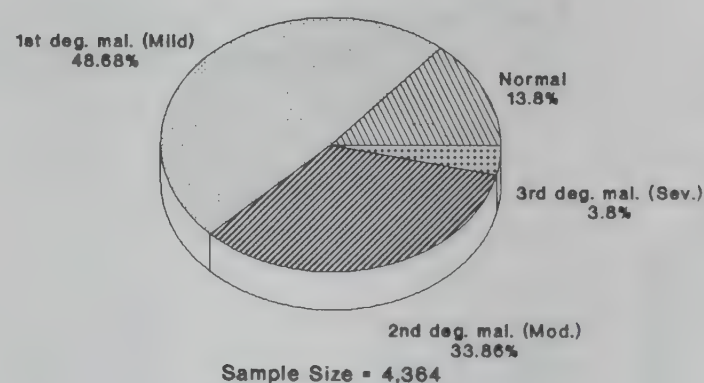
Nutritional Status of Children (6-72m)



Source: A Situation Analysis of Nutritional Problem in Nepal, by Dr. Tirtha Rana, Nepas J., vol. 10, 1990.

Figure 4.7

Nutritional Status of Children (6-36 m)



Source: New ERA Baseline Survey for JNSP cited by Dr. Tritha Rana in a SANP in Nepal, Nepas J., vol. 10, 1990.

population covered by both studies. A comparison of the 1983 and 1986 surveys with the national survey of 1975 (see Figures 4.6, 4.7 and 4.8) shows that the years that elapsed between the two studies did not have much of an impact on the nutritional status of children. In fact, there was no improvement in their condition, which perhaps

even deteriorated. Figure 4.9 shows that although there was a slight increase in the normal group from 45.3 to 54.1 per cent, there was, at the same time, an increase in the wasting group from 2.8 to 4.9 per cent. Although these figures pertain to different locations, sample sizes and age groups, they provide a general idea of the extent of

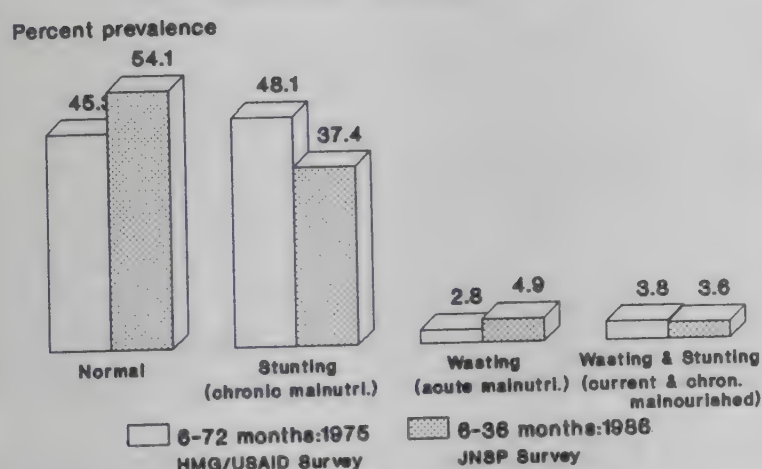
Table 4.2: Percentage Distribution of 4,331 Children in the Age Group 6 to 36 Months from Five Districts by Nutritional Status, 1986

Nutritional status	Sindhupalchok	Makwanpur	Gorkha	Syangja	Nawalparasi	Total
Normal	52.7	49.7	48.7	57.7	61.6	54.1
Stunting	38.1	39.4	46.6	37.7	25.4	37.4
Wasting	5.1	5.6	2.6	2.4	8.6	4.9
Wasting and stunting	4.1	5.3	2.0	2.1	4.3	3.6
Sample size	850	878	877	845	881	4,331

Source: *New ERA*, a baseline survey for the Joint Nutrition Support Programme, December, 1986.

Figure 4.8

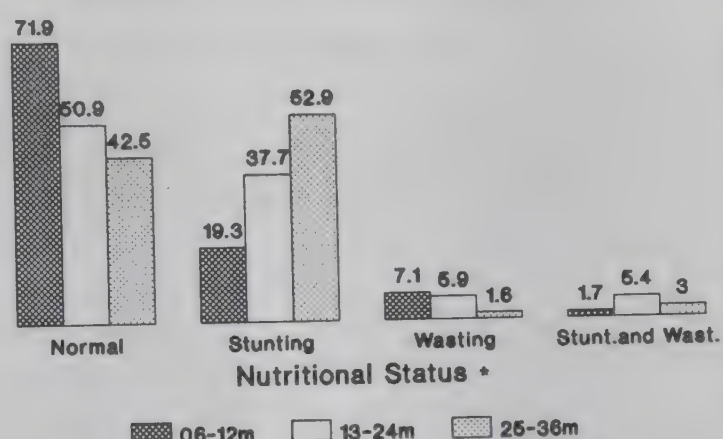
Nutritional Status of Children by Wasting and Stunting



Source: A Situation Analysis of Nutritional Problem in Nepal by Dr. Tirtha Rana, *Nepas J.*, vol.10, 1990.

Figure 4.9

Percentage Distribution of 4,311 Child'n by Age in Months and Nutr. Status, 1986



Note: * Using the Waterlow class. of stunting and wasting
Source: *New Era*, A Baseline Survey for the JNSP, December 1986.

malnutrition in the country. The results of some of the surveys presented in the above Tables and Figures give us the impression that about 70 per cent of rural children in Nepal are undernourished with varying degrees of malnutrition. The group most vulnerable to wasting is the 3 to 36 months age group in the weaning period.

Several studies have shown an association between nutritional status and socio-economic status. In a study conducted by Martorell and Moock in 1984, the households were divided into three groups according to the value of crop production and it was found that those households with crop production worth less than Rs 560 had significantly higher rates of stunting than households in which crop production was worth more than Rs 2,050 (see Figure 4.10).

In a study conducted by Nabaro in 1981, it was found that children in households with less than half an hectare of land had higher rates of stunting than children in households with more than 1

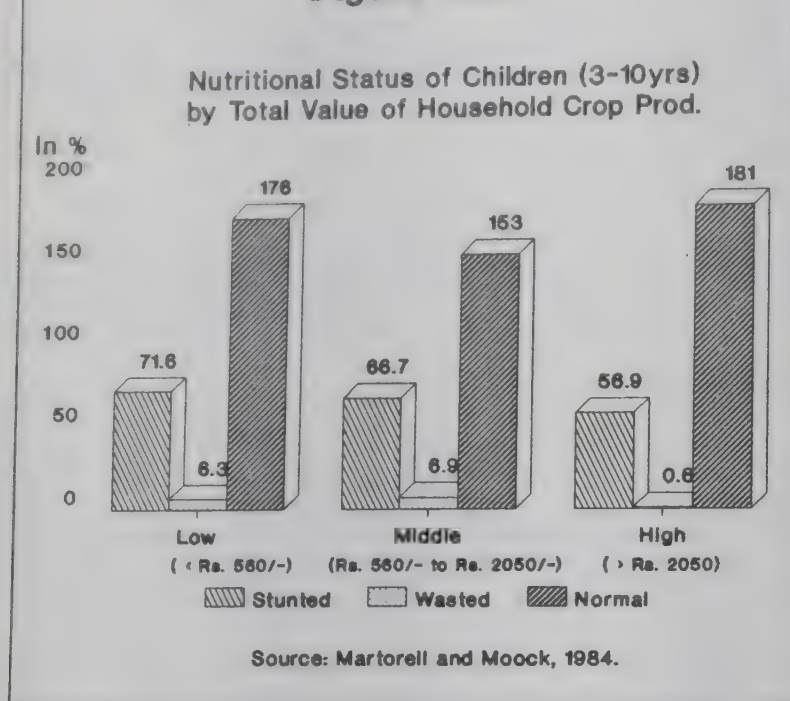
hectare of land (see Figure 4.11).

A similar study in 1982 of the Kosi Hills Area Development Programme (KHARDEP) in Eastern Nepal also showed a striking relationship between the prevalence of malnutrition in children and the size of the households' landholding. Malnutrition among children (between 12 and 35 months of age) from households with landholdings less than 0.5 hectare was 10 times that in households with more than 1 hectare.

As regards the prevalence of Protein Energy Malnutrition (PEM) in Nepal, it has been estimated on the basis of the available survey data that at any given time at least 1.25 lakh severely malnourished children in Nepal are in danger of death, and in need of immediate attention and rehabilitation. Only 7.3 per cent of the children between 6 months and 6 years of age could be classified as 'normal', using weight for age standards.

Besides PEM, Nepal also has high rates of micro-nutrient deficiencies. Nutritional anaemia,

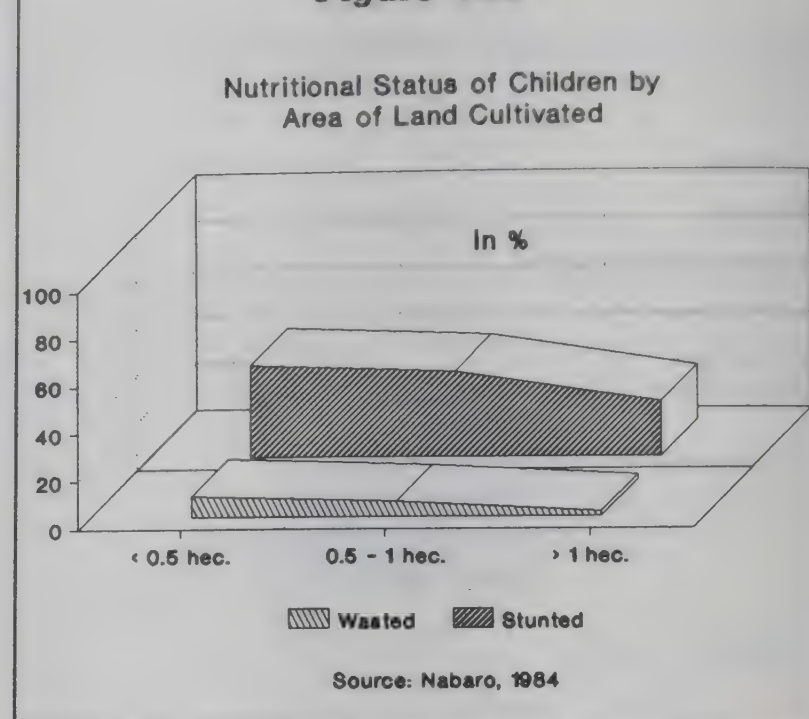
Figure 4.10



especially iron deficiency anaemia, is an important public health and social problem, the magnitude of which (as reported by the 1975 National Nutrition Survey) is 19.6 per cent among children 6 to 23 months of age, and 24.9 per cent among children 24 to 72 months of age. However, nation-wide data is not available for other population groups. Iron deficiency is a major problem, particularly among women. According to a UNICEF report based on the data of local studies, it has been indicated that 50 to 70 per cent of all women in the child-bearing age suffer from moderate to severe forms of anaemia. In the 1986 survey by New ERA, it was found that clinically 78 per cent of the mothers were anaemic, i.e., with haemoglobin (Hb) levels less than 12 gm/dl. Iron deficiencies caused by poor nutrition are exacerbated by multiple pregnancies, malaria and parasitic infestations.

Endemic goitre is widely prevalent at fairly high levels throughout Nepal and poses a serious problem in the country. It is believed that the prevalence of endemic goitre in Nepal is about the highest in any Asian country and one of the highest in the world (Nepal has the second highest prevalence of iodine deficiency in the world). The results of the comprehensive National Goitre Survey (1987) indicate that the prevalence rates in different districts ranges from 25 to 83.9 per cent with a mean national prevalence rate of 56.7 per cent (see Table 4.3). As is to be expected, goitre affects women in the child-bearing age. The prevalence of cretinism varies from 0 to 12.7 per cent and deaf-mutism is not uncommon in remote

Figure 4.11



areas of the country.

For some years now the problem of goitre has been sought to be controlled through the supply of iodated salt. According to an agreement with the Government of India in 1972, all salt was to be first iodated in India (at two salt plants, in Kharaghoda,

Table 4.3: Prevalence of Goitre in Nepal (1987)

Region	District	Number examined	% of total with goitre
Eastern	Sankhuasabha	5,582	25.0
Central	Rasuwa	2,575	42.0
	Trisuli(Nuwakot)	258	55.0
	Kathmandu	880	58.0
Western	Lomjung	3,038	62.4
	Gorkha		
	North	750	70.0
	South	3,111	40.2
	Mustang	355	68.2
Mid-Western	Mugu	1,970	72.0
	Kalikot	890	38.1
	Jumla		
	- Nila valley	975	67.9
	- Sinja valley	441	83.9
Far-Western	Surkhet	2,576	60.0
	Bajura	2,649	73.9
	Darchula	345	28.0

Source: Comprehensive National Goitre Survey, 1987.

Gujarat and in Sambhar Lake, Rajasthan) and only then permitted to be imported into Nepal. The scheme proved a failure, perhaps because as the salt was packed in gunny bags and exported in open wagons and stored for several months in godowns, distribution centres and at people's homes, iodine losses were high. Checks of salt samples showed the iodine concentration to be far below the prescribed level. In order to overcome these problems, it was decided that the salt would first be imported from India and then iodated in Nepal itself to avoid iodine losses arising from transport in open wagons for long distances. A second agreement was signed between Nepal and India in 1980, according to which six iodisation plants were proposed to be set up along the India-Nepal border inside Nepal and were to be fully operational by the end of 1987. Currently, however, only two are in operation and there have been serious delays in getting the plants operational.

In view of the inadequacies of the Salt Iodation Programme and the difficulties it was encountering, a separate Goitre and Cretinism Eradication Project (GCEP) was initiated at the same time as an interim measure to carry out the administration of iodinated oil injections. By 1987, the GCEP was operational in 30 districts. However, this is a relatively expensive means of providing iodine.

Despite these programmes which have been in existence since the early 1970s, the problem of iodine deficiency still remains particularly severe in Nepal.

In 1982, the Nepal Blindness Survey showed that 0.22 per cent of children under 6 years suffered from xerophthalmia and 0.64 per cent showed Bitot's spots. It is to be remembered that while the incidence of keratomalacia is almost totally confined to children under 3 years of age, the incidence of Bitot's spots is generally higher in older children of school-going age. The study showed that more boys under 6 years (60 per cent) than girls suffered from Bitot's spots. The Terai region and villages at an elevation less than 350 metres were the areas with the highest prevalence rate. Eastern and Central Terai were the major geographic focus of xerophthalmia, followed by Far-Western hills and plains. Nearly 90 per cent of the cases came from the Vaish and Shudra castes and none from the landowning families. The risk factors associated with the high incidence of xerophthalmia were insanitary surroundings, reduced consumption of vegetables, intermittent

periods of food shortages and, above all, history of diarrhoea. Diarrhoeal episodes were found to precede xerophthalmia in a high proportion of cases. In a controlled case study in which cases and controls were matched by age, sex, season and village, the cases were found to be more likely to have had diarrhoea in the previous four weeks than the matched controls. Of the 11 blind children under 15 years of age detected in the survey, only two were cases of nutritional blindness due to keratomalacia.

A survey in Western Nepal in 1984 under the auspices of Save the Children Fund (SCF) showed an overall prevalence of 0.81 per cent xerophthalmia in children under 6 years of age. The level of wasting in these cases was of a much higher order than among those in the same area who did not suffer from xerophthalmia. According to the nutrition division of the Department of Health Services, the prevalence of night blindness is estimated at 1.8 per cent, xerophthalmia at 3.02 per cent, and corneal ulcer relatable to vitamin A deficiency at 0.38 per cent. These estimates are clearly higher than those reported in the 1984 survey.

There is currently a programme in operation for the distribution of one large dose of vitamin A once in six months to children under three years. However, it is doubtful if this programme is really able to reach a significant proportion of the target population.

As malnutrition is the consequence of poverty and underdevelopment, any improvement in the nutritional status of the population can only take place as part of the all-round socio-economic development of the country. Isolated, vertical programmes targeted to one or other specific manifestation of undernutrition, and programmes which do not address the basic underlying factors of poverty and underdevelopment can at best yield limited short-term benefits and help temporarily mitigate only some aspects of the problem. Thus, it could be safely concluded that Nepal's nutritional problems can be solved only by combating the basic socio-economic factors that underlie poverty and undernutrition. Therefore, there is no denying that the ultimate rational answer to the problem of undernutrition of course consists of attacking and eradicating poverty — a goal unlikely to be achieved in the near future.

Again, as mentioned earlier, the extreme personal deprivation in terms of poverty and malnutrition can in the long run only be overcome by

effective improvements in *education, employment generation and upgradation of agricultural productivity*. However, the more immediate alleviation of some of the worst aspects of malnutrition is also possible through a number of specific interventions to ensure not only access to sufficient calories but also a reduction in the prevalence of infectious diseases and parasitic infestations. Studies in other countries have shown that parasitic infestation may cause the loss of 20 per cent of caloric intake. As previously mentioned, parasitic infestation is a major hazard in Nepal which could in turn have an impact on the nutritional status of the people. Specific interventions are also possible to improve hygiene, promote better feeding practices (including breast-feeding and appropriate weaning practices), manage disease episodes more effectively, and improve sanitation and water supply. In addition, while such effective health programmes like immunisation will help break the disease-malnutrition cycle, some other selected interventions such as the use of oral rehydration salts and micro-nutrient supplementation (iodine, iron and vitamin A) will no doubt have a positive discernible impact on nutrition status. Health (including hygiene) and nutrition awareness campaigns on specific issues like water supply, sanitation, personal hygiene and improved feeding practices should also be promoted.

Thus, the root causes of ill-health in Nepal (particularly the major health and nutritional problems which have been discussed here in detail) lie in large measure in widespread and extreme poverty, and in an associated lack of basic infrastructure. A safe water supply remains a distant dream in most parts of Nepal; facilities for sanitary excreta disposal, disposal of solid wastes and drainage of surface water are limited in magnitude and effectiveness. Shelters are generally poor and heavily overcrowded in urban areas, limiting the scope for personal and domestic hygiene and fostering the spread of diseases.

Although data on morbidity is too fragmented to provide a comprehensive picture of the health scenario and disease profile in Nepal, the available information presented in the foregoing analysis reveals the following salient features of the status of health and nutrition in Nepal:

- The incidence of communicable and vector-borne diseases such as malaria, tuberculosis,

leprosy, polio, tetanus and other preventable diseases in Nepal is still very high.

- Environmental sanitation is very poor, particularly in the rural hill/mountain areas as well as in urban slums. Arrangements for proper disposal of human and animal wastes and sewage are lacking.
- Safe and potable water is available to only a very small proportion of the population.
- Nutritional deficiency disorders are severe, particularly Protein Energy Malnutrition, vitamin A and iodine deficiency (among the highest in the world). Nutritional anaemia too is prevalent in a very wide section of the people.
- All the mortality indicators are very high and are among the highest not only in Asia but in the world, and comparable to levels found in the worst parts of Sub-Saharan Africa.

In short, the health and nutritional status in Nepal can only be described as extremely poor. Although mortality rates (including the IMR and U-5 MR) have declined, it can be said without exaggeration that at any given time each and every Nepali is either ill or imminently at risk of a major health hazard.

To sum up, *morbidity* has its roots in *communicable diseases* for the *whole population*, *malnutrition* is rampant among *children* and the female population is at great risk from *complications of pregnancy and childbirth*.

Therefore, Nepal is experiencing the classical health problems of underdevelopment and social deprivation, namely, nutritional deficiencies and communicable diseases. The problem in Nepal is not necessarily and primarily one of a specific disease, calling for a specific medical intervention along vertical lines. The main health problem of the country is a broad horizontal problem of poverty. Therefore, disease and health in Nepal should be looked at in the context of *social needs* and be related to health and social inequalities.

Any improvement in the health and nutritional status in Nepal can only come about as part of all-round socio-economic development. In this process, while the health sector has no doubt a legitimate role to play, *non-health sectors* must make a major contribution. Therefore, the answer to the problem of health and nutrition in Nepal has to be sought within and beyond the conventional health sector.

5.

Health Services Delivery System

Organisation

Until the 1950s and early 1960s health care (more specifically curative medical care) was provided by hospitals in the urban centres and a few rural dispensaries. Virtually no health service delivery system existed outside Kathmandu valley. The Ministry of Health was established in 1956, mainly to eradicate smallpox and to control malaria (the National Malaria Eradication Organisation — NMEO was established in 1958). These two priorities were organised as separate disease control vertical programmes or projects. In 1968, the Family Planning/Maternal and Child Health (FP/MCH) project was initiated and about the same period two other vertical programmes for leprosy and tuberculosis were also started. In 1977 the Expanded Programme of Immunisation (EPI) was begun.

A system of public and personal health care through a network of district hospitals and health posts (currently the entry points for health care delivery at the peripheral level) became the priority of the government only about 12 years ago in the wake of the historic Alma Ata Declaration in 1978. In the early 1980s, additional intervention activities such as the Goitre Control Project, Project for Control of Blindness, Nutrition Support Programme, Diarrhoea Disease Control Programme were initiated by the Centre. The dominance of programmes designed along vertical lines has been a major influence on the structure and quality of services and affects the way they are staffed, managed and financed. However, it has recently been decided at the highest policy levels to integrate the functions of the vertical programmes at the district and

regional levels (i.e., the horizontal integration of vertical projects).

In order to decentralise the management of health services, the Central Department of Health Services was dismantled and five Regional Directorates established for each of the development regions. Apart from these Regional Directorates, the Ministry is now organised into various divisions, each headed by a Division Chief who reports directly to the Secretary.

The details of the organisational structure of the health system at various levels — national, regional, zonal, district, and peripheral — is presented below.

The health system at the *national level* consists of the Ministry of Health with its various divisions and units — the Administrative Division; Manpower Development and Training Division; Policy Planning, Monitoring and Supervision Division (PPMSD); Department of Ayurved; Department of Drugs Administration; Regional Health Services Directorate; Nursing Division; Public Health Division; Epidemiology Division; Curative Division; and Management Development Section (see Chart 1).

At the *regional level*, Directorates of Health Services have been established and are functional in five development regions (for details see Charts 2 and 3).

At the *zonal level* are the Zonal Hospitals, which serve as referral points for district facilities.

At the *district level* are District Public Health Offices and their various sections (Administrative Section; Fiscal Section; Health Posts; Planning, Monitoring and Supervision Section; and the District Hospital (see Charts 4 and 5).

CHART 1

ORGANISATION CHART OF THE MINISTRY OF HEALTH

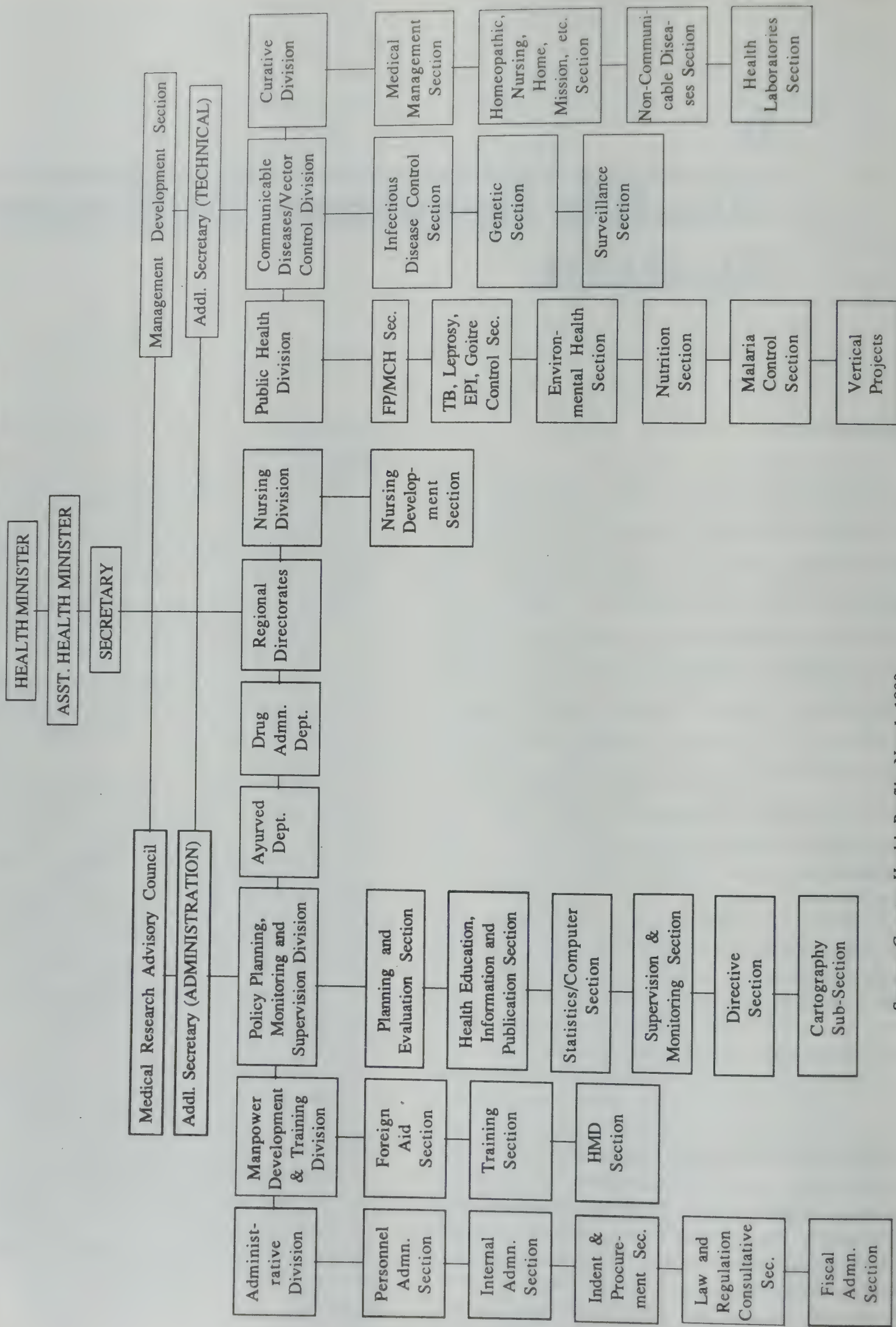
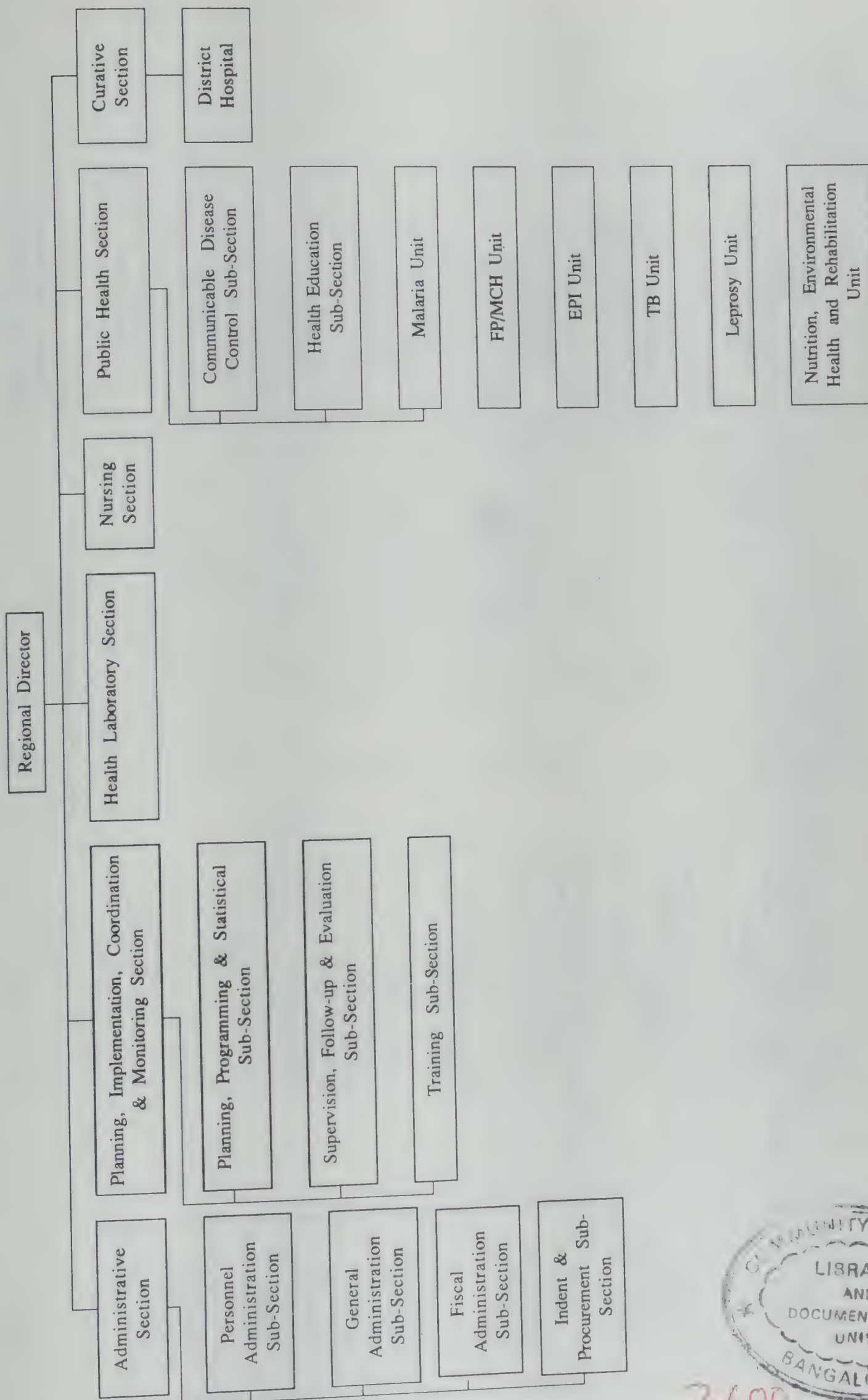
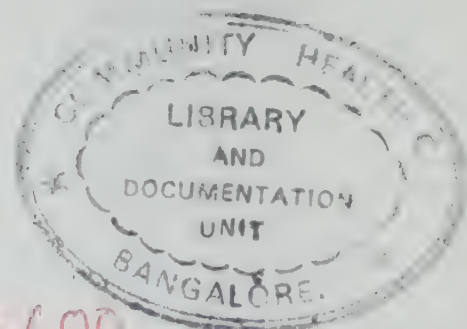


CHART 2

ORGANISATION CHART OF THE EASTERN, WESTERN, MID-WESTERN AND FAR-WESTERN REGIONAL HEALTH DIRECTORATES

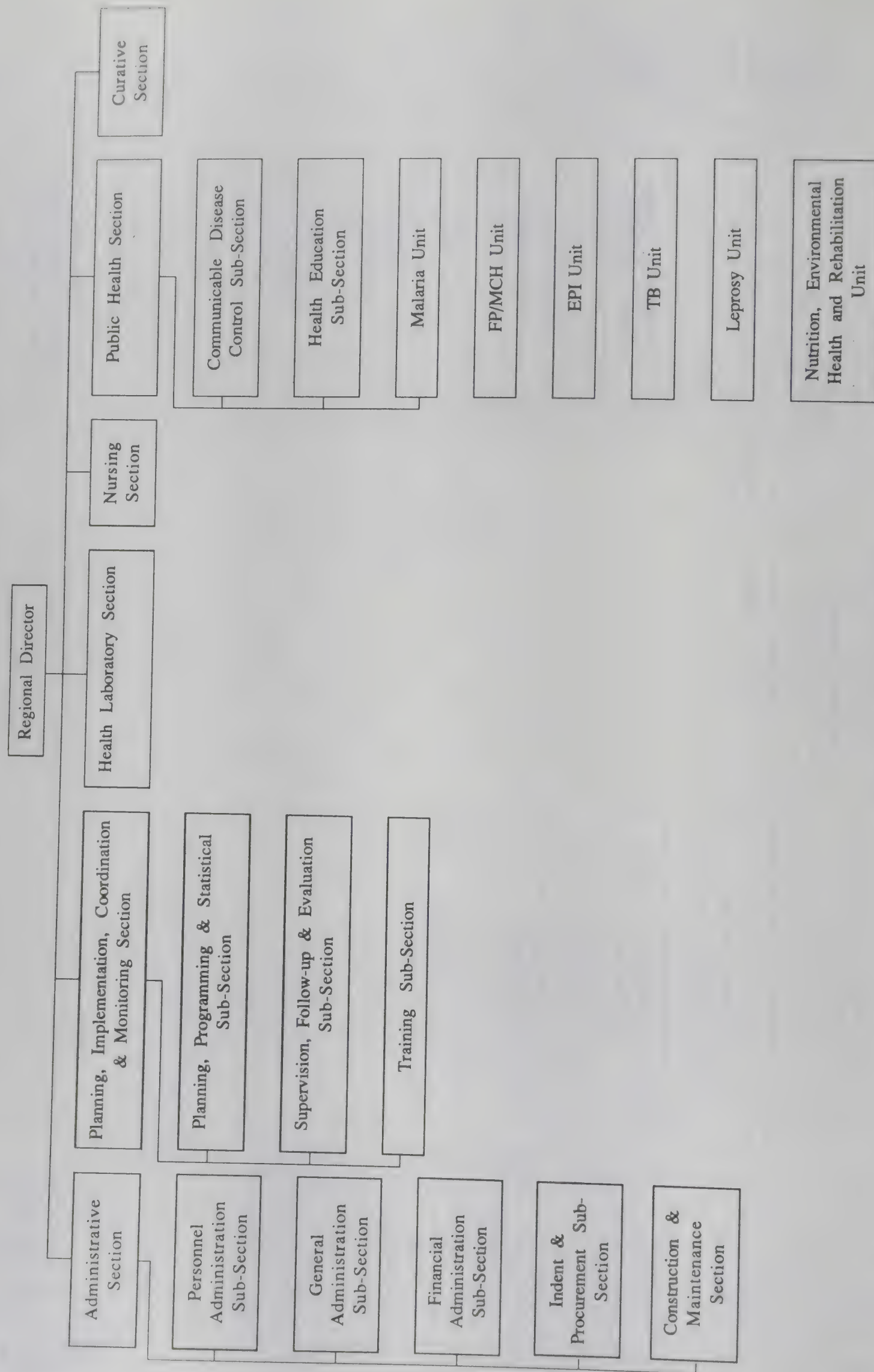


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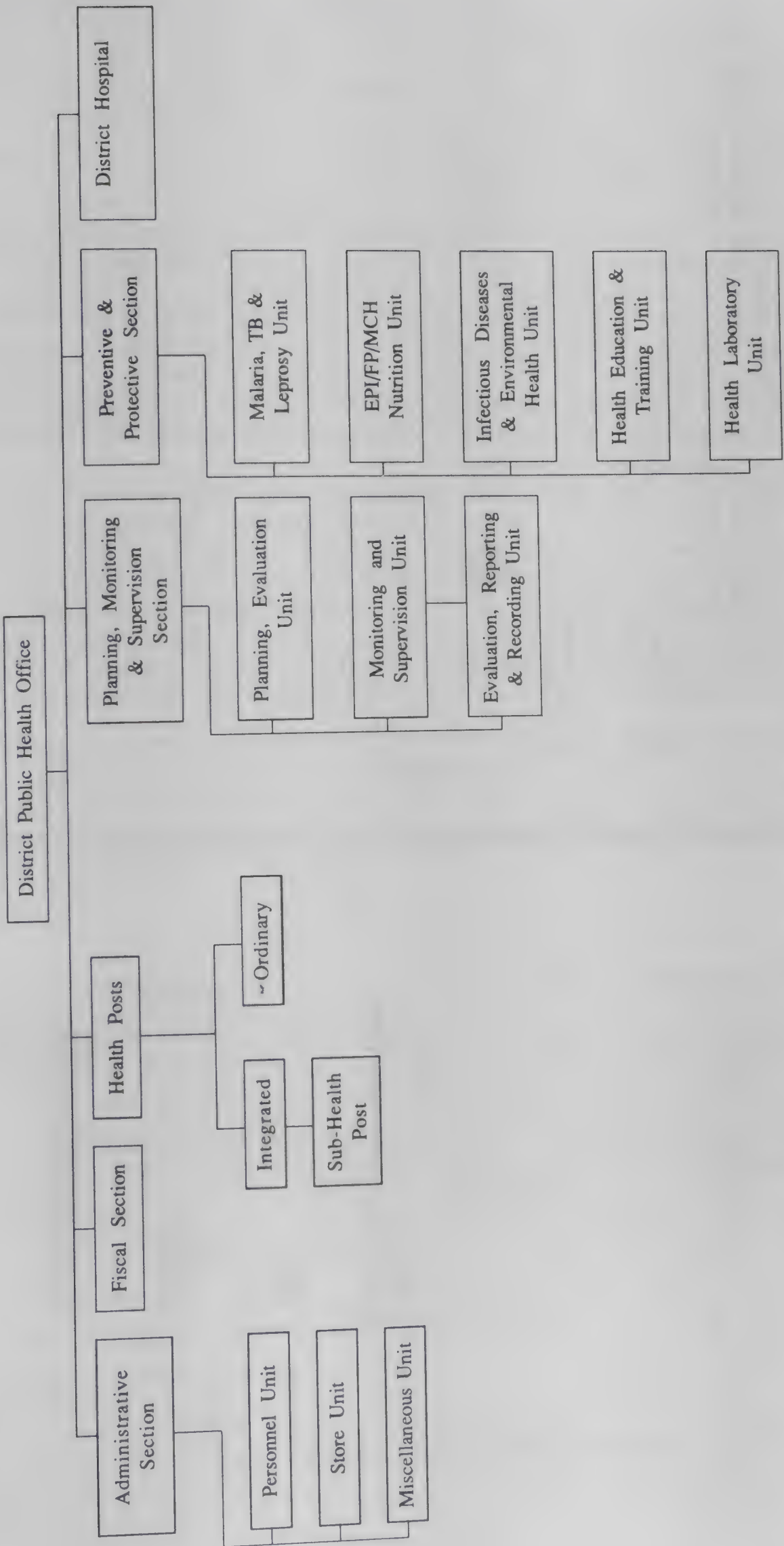
Source: *Country Health Profile*, 1988.

CHART 3
ORGANISATION CHART OF THE CENTRAL REGIONAL HEALTH DIRECTORATE



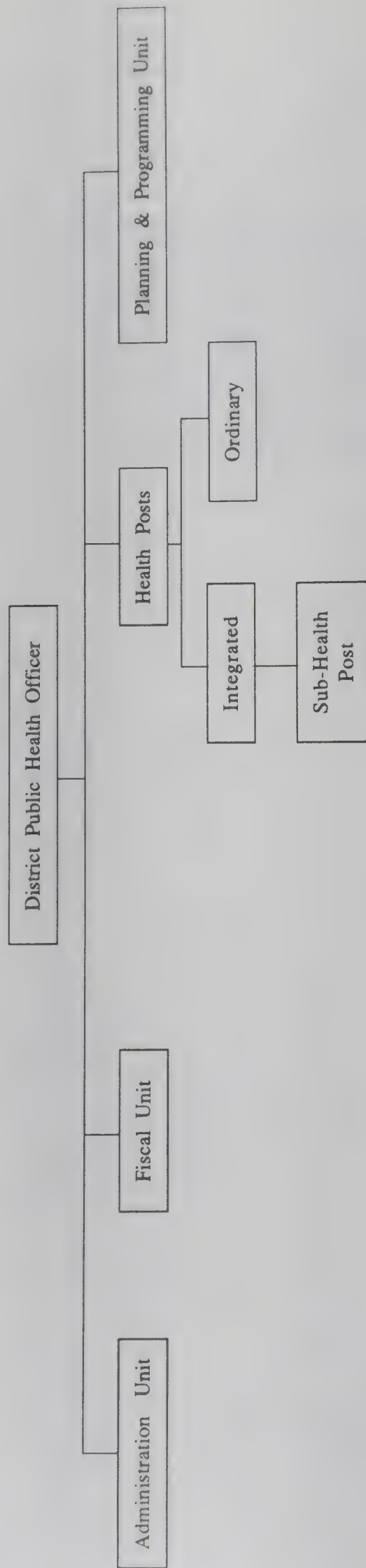
ORGANISATION CHART OF THE DISTRICT PUBLIC HEALTH OFFICE

(A and B Levels)



Source: *Country Health Profile*, 1988.

CHART 5
 ORGANISATION CHART OF THE DISTRICT PUBLIC HEALTH OFFICE
 (C Level)



Source: *Country Health Profile*, 1988.

The *peripheral level* is served by one health post in each *ilaka* in all the 75 districts, with a variety of field workers, including village health workers (VHW), malaria field workers, vaccinators, female community health volunteers (FCHV), etc.

Infrastructure

Hospitals and Hospital Beds: According to the latest available information (1990), there are 123 hospitals in Nepal with a total capacity of 4,717 beds. The number and percentage distribution of hospitals and hospital beds by development regions is presented in Figure 5.1.

Table 5.1 shows the increase in the number of hospitals and hospital beds from the Fourth through the Seventh Plan periods by development regions.

The hospitals in Nepal have been broadly classified into central, regional, zonal and district level hospitals. Seventy of the country's 75 districts now have a district hospital, each with less than 50 beds and three posts for doctors (rarely are all three posts filled). District hospitals do not have any specialised services and provide only very limited surgical and obstetrical care. By and large they

function as out-patient units. At the next tier are zonal hospitals where specialist services are available. There are 14 such hospitals, one in each zone. At the central level in Kathmandu there are a number of hospitals, some of them offering specialised services like the Kanti Hospital (paediatrics), Eye Hospital, Maternity Hospital, Infectious Disease Hospital and a teaching hospital run by the Institute of Medicine.

The urban orientation of health services is evident from the fact that out of 4,717 beds in 123 hospitals in Nepal, over 2,000 beds (i.e., more than 50 per cent) and over 75 hospitals are concentrated in the Central region, and about 18,000 beds are located in Kathmandu valley itself. Hospital care is thus heavily biased in favour of the urban population and the relatively privileged minority living in the Central region, particularly in Kathmandu valley.

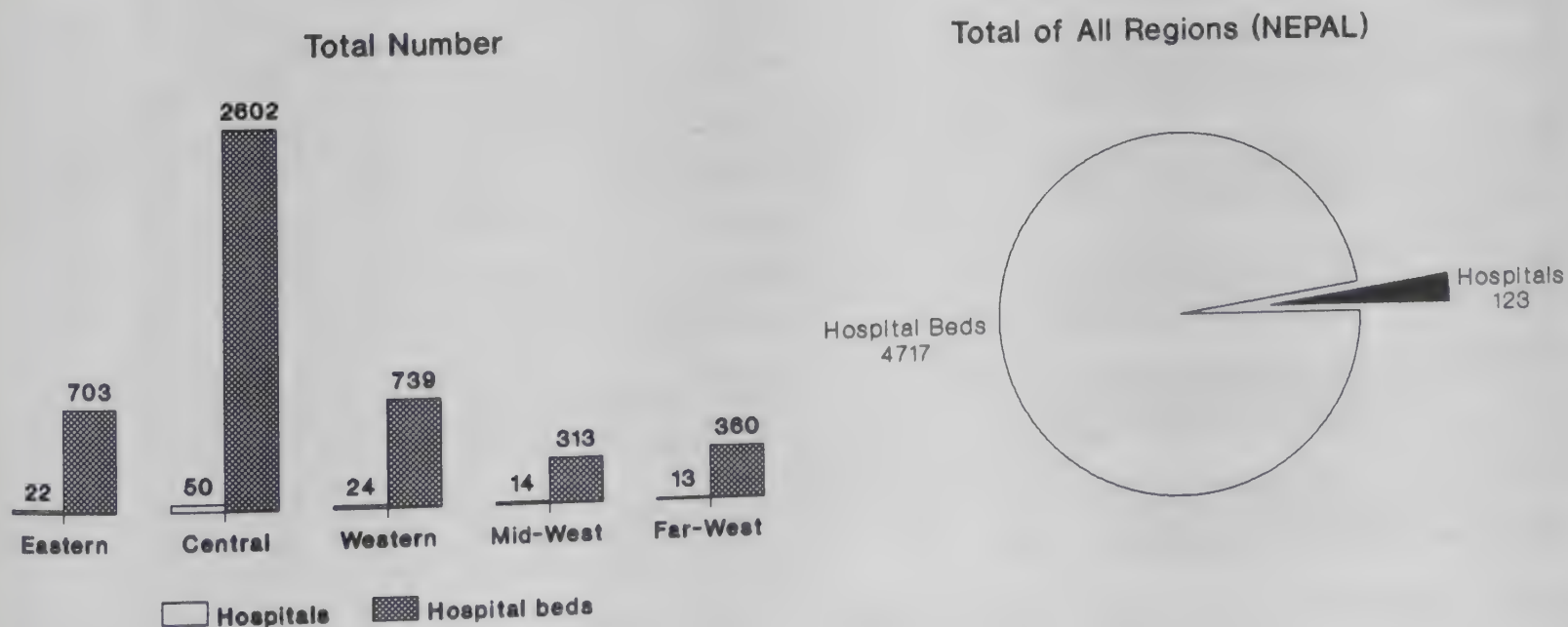
Table 5.2 furnishes information relating to the distribution of hospitals and hospital beds by development region and geographical belts.

Figure 5.2 shows the increase in the number of different health institutions from 1983 to 1989.

In terms of service delivery, the main point of

Figure 5.1

Distribution of Hospitals and Hospital Beds by Development Regions



Source : Health Information Bulletin, vol. 6, 1990.

Table 5.1: Increase in Number of Hospitals and Hospital Beds from Fourth through Seventh Five Year Plan Period by Development Region

Development Regions	End of 4th plan		End of 5th plan		% of increment		End of 6th plan		% of increment		End of 7th plan		% of increment	
	Hospital bed		Hospital bed		Hospital bed		Hospital bed		Hospital bed		Hospital bed		Hospital bed	
Eastern	13	356	17	455	23.53	21.76	20	494	15.00	7.89	22	703	9.09	29.7
Central	25	1,273	28	1,498	10.71	15.02	29	2,111	3.45	29.04	50	2,602	42.00	18.8
Western	13	305	15	421	13.33	27.55	15	486	0.00	13.37	24	739	37.50	34.4
Mid-Western	5	110	6	116	16.67	5.17	6	116	0.00	0.00	14	313	57.14	62.9
Far-Western	4	80	6	110	33.33	27.27	9	265	33.33	58.49	13	360	30.77	26.3
NEPAL	60	2,124	72	2,600	16.67	18.31	79	3,472	8.86	25.12	123	4,717	35.77	26.3

Source: *Health Information Bulletin*, vol.6, 1990.

Table 5.2: Distribution of Hospitals and Hospital Beds by Development Regions and Geographical Belts

Development regions/ geographical belts	Total no. of hospitals	Total no. of hospital beds	Population	Average population per hospital beds	% hospitals	% hospital beds
Eastern	4	60	351,059	1:5851	33.33	31.58
Central	2	40	443,715	1:11093	15.67	21.05
Western	2	30	21,236	1:708	16.67	15.79
Mid-Western	1	15	276,134	1:18409	8.33	7.89
Far-Western	3	45	324,513	1:7211	25.00	23.68
MOUNTAIN	12	190	1,416,657	1:7456	100.99	99.99
Eastern	7	105	1,352,254	1:12879	10.45	3.48
Central	34	2,195	2,462,533	1:1122	50.75	72.80
Western	14	535	2,465,553	1:4609	20.90	17.74
Mid-Western	6	90	1,182,570	1:13140	8.96	2.99
Far-Western	6	90	685,388	1:7615	8.96	2.99
HILL	67	3,015	8,148,298	1:2703	100.00	100.00
Eastern	11	538	2,917,554	1:5423	25.00	35.58
Central	14	367	3,021,972	1:8234	31.82	24.27
Western	8	174	1,304,605	1:7498	18.18	11.51
Mid-Western	7	208	946,689	1:4551	15.91	13.76
Far-Western	4	225	681,846	1:3030	9.09	14.88
TOTAL	44	1,512	8,872,666	1:5868	100.00	100.00
NEPAL	123	4,717	18,437,621	1:3909	100.00	100.00

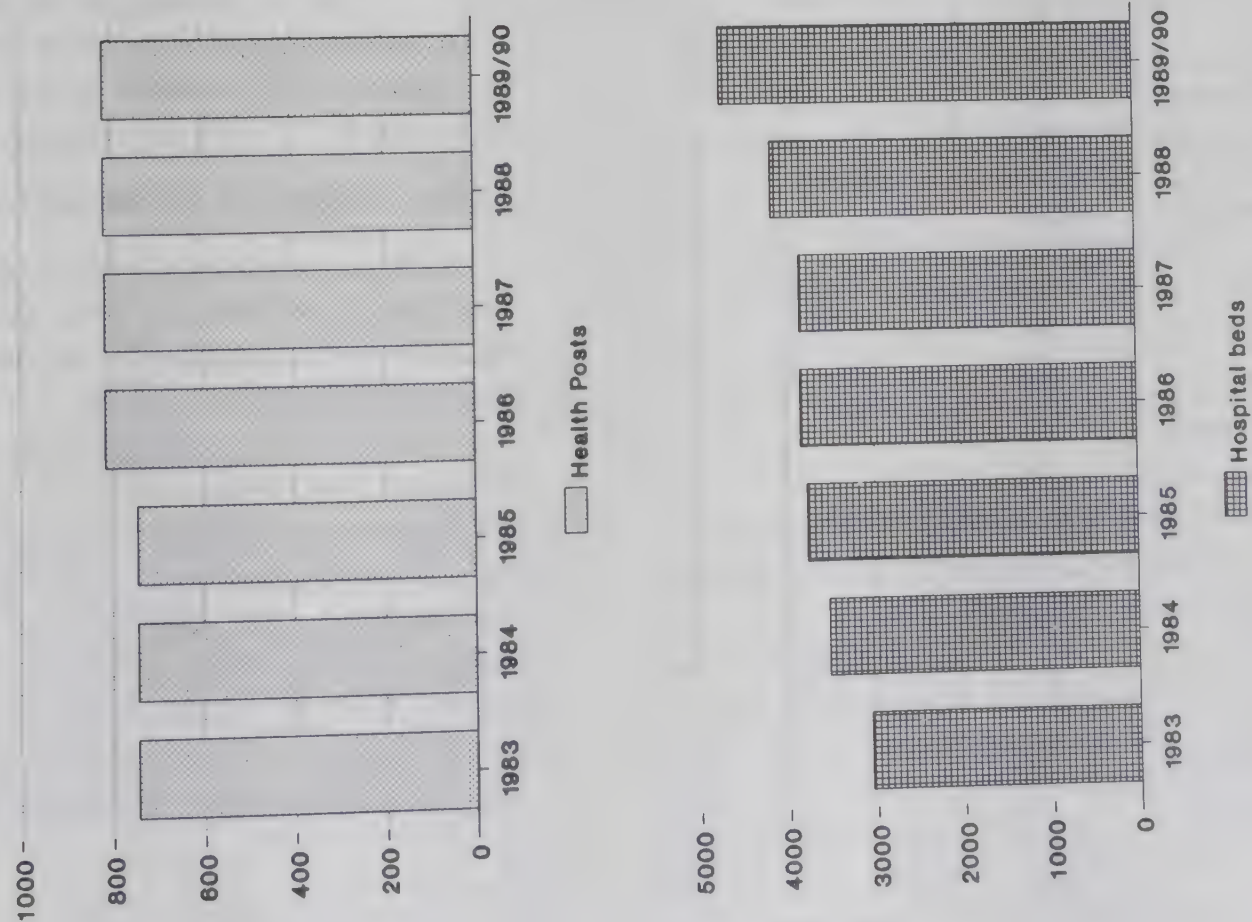
Source: *Health Information Bulletin*, vol. 6, 1990.

entry for health care in the rural areas are the health posts. The health post network expanded from only 192 in the early 1970s to 744 in 1983 and 816 in 1989-90 (the latest available figures). The health post is now the centre for preventive, promotive

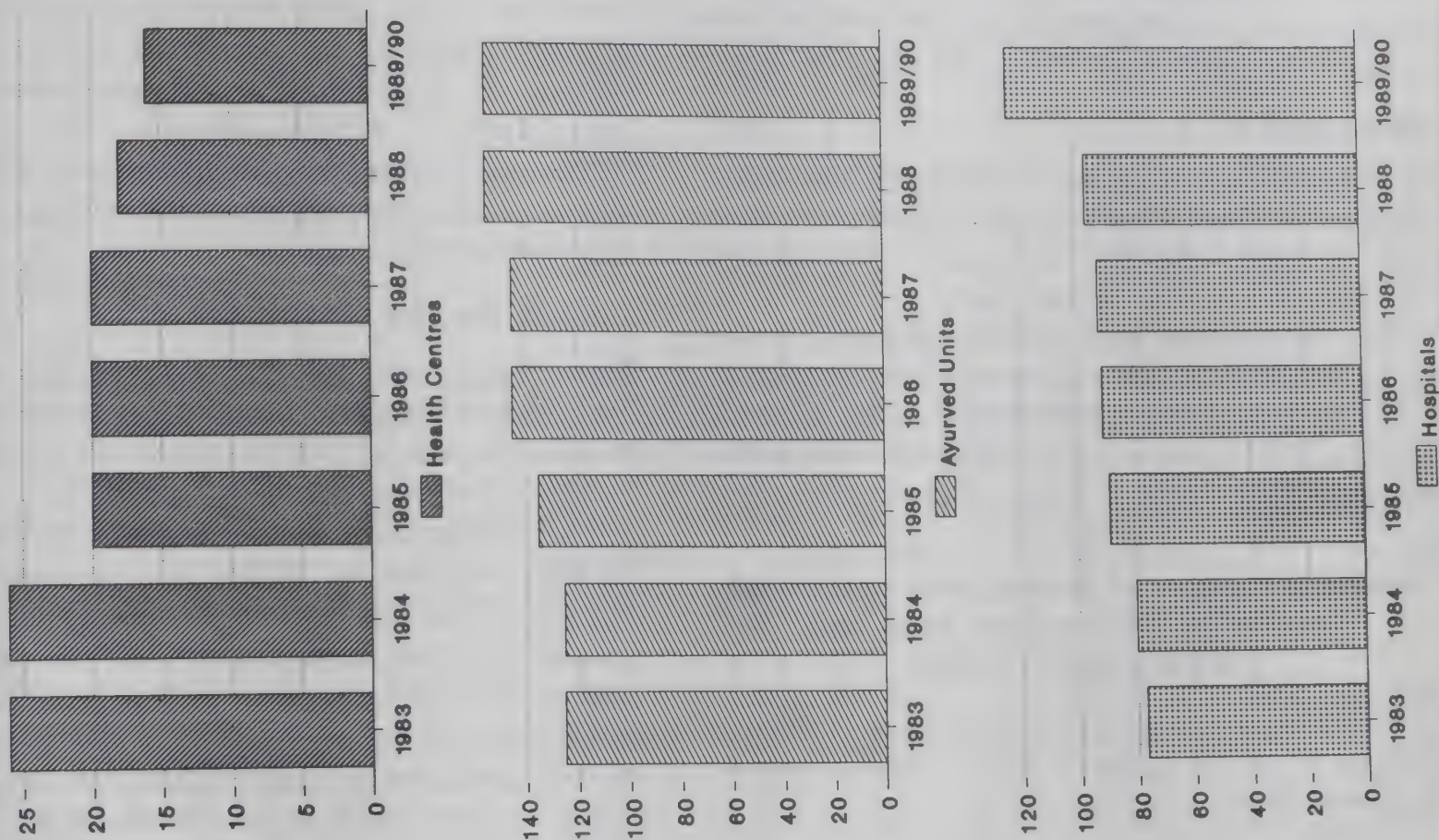
and limited curative activities carried out by voluntary health workers (VHWs). The distribution of health posts and health centres by geographical belts and development regions is presented in Table 5.3.

Figure 5.2

Number of Health Institutions, 1983 to 1989



Source : Prepared on the basis of data available in Health Information Bulletin, vol. 6, 1990.



Although there are 816 health posts in the country, in reality, many health posts can be regarded as non-functional. Poor facilities, prolonged staff absence, poor supervision and management, and inadequate supply of medicines are some of the reasons for their poor performance.

Personpower

As hospital care is biased in favour of the urban population, Nepal's health personpower also shows such a bias, with 550 of Nepal's 879 doctors concentrated in the Central region.

The paramedical staff consists of health assistants (HA), auxiliary health workers (AHW), nurses, assistant nurse midwives (ANMs), village health workers (VHW), and community health volunteers/leaders (CHV). Some of the vertical project staff is

Table 5.3: Number of Health Posts and Health Centres by Geographical Belts and Development Regions

	Geographical belts/ development regions	Type of health posts			Health centres
		Ilaka	Static	Total	
1.	Eastern	27	3	30	2
2.	Central	27	3	30	2
3.	Western	18	0	18	0
4.	Mid-Western	45	1	46	2
5.	Far-Western	27	5	32	0
	MOUNTAIN	144	12	156	6
1.	Eastern	72	11	83	2
2.	Central	81	25	106	5
3.	Western	99	29	128	2
4.	Mid-Western	63	8	71	0
5.	Far-Western	36	11	47	0
	HILL	351	84	435	9
1.	Eastern	45	13	58	0
2.	Central	63	17	80	0
3.	Western	27	5	32	0
4.	Mid-Western	27	7	34	0
5.	Far-Western	18	3	21	1
	TERAI	180	45	225	1
	NEPAL	675	141	816	16

Source: *Health Information Bulletin*, vol. 6, 1990.

also community-based like panchayat-based workers. Other vertical project staff include EPI vaccinators, malaria field workers and TB and leprosy workers.

Tables 5.4, 5.5 and 5.6 show the trend of growth of health personpower, population ratio of doctors, nurses, etc., and the required personpower by the year 2000.

The above data undoubtedly reveals that there is a severe shortage of physicians in Nepal, particularly in the rural areas.

Budget for the Health Sector

The share of the health budget in the national budget over the past five years has remained more or less constant. In 1983-84 it was 4.56 per cent and in 1987-88 it was 4.23 (see Table 5.7).

The expenditure of the Ministry of Health is divided between a regular and a development budget. While the regular budget is exclusively funded by the government, the development budget is funded equally by foreign assistance and government revenue. The ratio of allocation to the development and regular budgets over the last five years has been 65:35 in the lowest range (in 1986-87), and 75:25 in the highest range (1988-89). The share of the development budget has increased from 1987-88 as shown in Table 5.8.

Table 5.9 furnishes information on the expenditure pattern for various types of primary health activities from 1985-86 through 1987-88.

Issues in Health Care Delivery

Until 1950, there were just a couple of hospitals and very few physicians to treat the people of Nepal. Virtually no modern health service delivery network existed outside Kathmandu. Although a great deal has been achieved since then and considerable progress has been made in various aspects of health service delivery, it is still inadequate to meet the growing needs of the present population. Furthermore, the health care system is itself plagued with certain inherent weaknesses which need corrective action. Some of the issues relating to health care delivery in Nepal which need priority are dealt with under the following heads:

- 1) Effectiveness
- 2) Efficiency
- 3) Decentralisation
- 4) Integration

1) *Effectiveness*: It is estimated that health care delivery in Nepal reaches barely 10 to 15 per cent

Table 5.4: Growth of Health Personpower, Number of Doctors, Population per Doctor and Ratio of Nurse, Nurse Midwife and Auxiliary Health Worker per 100 Doctors

Year	Total no. of doctors	Population per doctor	MINISTRY OF HEALTH							
			Doctors	Ratio to total doctor%	Nurse	Per 100 doctors	ANM	per 100	AHW	Per 100
1985	698	1:23907	581	83.0	380	65.4	1,558	268.2	1,413	243.2
1986	710	1:24128	591	83.0	442	74.8	1,845	317.6	1,659	280.7
1987	863	1:20344	744	86.0	471	63.3	1,845	248.0	1,659	223.0
1988	879	1:20471	760	86.0	601	79.1	2,062	271.3	1,773	233.0

Source: *Country Health Profile*, 1988.

Table 5.5: Distribution of Existing Health Personpower and Population Ratio of Doctors, Nurses, ANMs, AHWs, VHWs, Laboratory Technicians, and Health Assistants and Senior Auxiliary Health Workers, 1988

Development	1987 population	Doctors	Pop. per Nurse	Nurses	Pop. per Nurse	ANM	Population per ANH	AHW	Population per AHW
1	2	3	4	5	6	7	8	9	10
Eastern	4,335,000	97	44,691	58	74,741	414	10,471	372	11,653
Central	5,736,000	493	11,635	420	13,657	687	8,349	507	11,314
Western	3,658,000	93	39,333	73	50,110	394	9,284	373	9,807
Mid-Western	2,284,000	38	60,105	25	91,360	345	6,620	317	7,205
Far-Western	1,544,000	39	39,590	25	61,760	222	6,955	204	7,569

Development region	VHW	Population per VHW	Lab. techn.	Population per lab. techn.	HA/SAHW	Pop. per HA/SAHW
	11	12	13	14	15	16
Eastern	882	4,915	25	1,73,400	209	20,742
Central	1,072	5,351	45	1,27,467	274	20,934
Western	898	4,073	22	1,66,273	217	16,857
Mid-Western	825	2,768	20	1,14,200	194	11,773
Far-Western	505	3,057	14	1,10,286	113	13,664

Source: *Country Health Profile*, 1988.

of the total population and that too mainly the urban population. As mentioned earlier, most of the health facilities (almost all the specialised hospitals) and health personpower (the physicians and specialists) are located in the urban areas where only 7 per cent of the total population resides. Again, for those fortunate few who have access to health facilities, the services are of very poor quality. Tragically, the implementation of a system of health care delivery which could reasonably be expected to address the needs of the majority of the population is a very long way from being realised.

Paradoxically, though the health care facilities are extremely inadequate in number, even those that exist remain severely underutilised. Many health posts in the interior and remote hilly regions register hardly 15 to 20 patients a day. Although distance and lack of supplies are important determinants of demand, they do not explain such low levels of health care coverage. Various micro-level studies have pointed out that utilisation of the health care facilities is heavily biased in favour of males. Currently, such complaints as skin diseases and other problems which are not life-threatening

Table 5.6: Required Personpower by the Year 2000

Activities	Situation in 1987-88	Total person-power by 2000	Additional required person-power up to 2000
Doctor	879	2,400	1,521
Kaviraja (Gaz)	22	150	128
Health Assistant	1,017	2,463	1,446
Auxiliary health worker	1,773	6,587	4,814
Kaviraja	165	700	535
Baidya	114	750	636
Nurse	601	1,202	601
Auxiliary nurse midwife	2,062	5,000	2,938
Health volunteer	5,600	48,000	42,400

Source: *Country Health Profile*, 1988.

constitute the bulk of consultations in Nepal and conditions such as severe malnutrition among children, which could prove to be fatal in some cases, are rarely treated.

Another major factor contributing to the ineffectiveness of health service delivery is the virtual absence of outreach care. Almost all health post care and district hospital services are localised and stationary, with few personnel going out and providing ambulatory care in the villages. Physicians in district hospitals rarely visit health posts and these visits are not envisaged as part of the health care system. Referral exists more in theory than in practice, and is the weakest link in the system.

Such programmes like MCH and nutrition, where the community (especially the women) has to be taken into confidence and where its involvement is essential, are necessarily hampered by the lack of an outreach component.

Table 5.7: Distribution of National and Health Expenditure Budget from 1983-84 to 1987-88

Year	Total national budget (in Rs '000)	Total national expenditure (in Rs '000)	% of total national expenditure	Total health budget (in Rs '000)	Total health expenditure (in Rs '000)	% of health expenditure	Health expenditure as % of total national expenditure
1983-84	9,522,613	6,979,200	73.29	319,972	318,600	99.57	4.56
1984-85	9,809,164	7,437,300	75.82	332,828	317,600	95.42	4.27
1985-86	11,489,364	8,394,800	73.07	403,358	394,200	97.73	4.70
1986-87	13,052,630	9,797,200	75.06	379,589	405,900	106.93	4.14
1987-88	15,187,740	11,61,100	76.46	583,304	491,700	84.30	4.23

Source: Ministry of Finance, as cited in *Country Health Profile*, 1988.

Table 5.8: Annual Regular and Development Budgets for the Ministry of Health, 1984-85 to 1988-89

Fiscal year	REGULAR		DEVELOPMENT		TOTAL	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
1984-85	151,913,000	31.34	332,828,000	68.66	484,741,000	100.0
1985-86	189,369,000	31.95	403,355,000	68.05	592,724,000	100.0
1986-87	200,426,000	34.56	379,589,000	65.44	580,015,000	100.0
1987-88	231,931,000	28.45	583,304,000	71.55	815,235,000	100.0
1988-89	268,705,000	24.70	819,000,000	75.30	1,087,705,000	100.0

Source: *Country Health Profile*, 1988.

**Table 5.9: Trends in Expenditure for Primary Health Care Activities,
1985-86 to 1987-88**

Primary Health Care Activities	Total Budget			Expenditure			% of expenditure		
	1985-86	1986-87	1987-88	1985-86	1986-87	1987-88	1985-86	1986-87	1987-88
FP/MCH	91,500	90,026	1,21,414	64,115	68,734	91,000	70.07	76.35	74.95
Public health	51,379	60,789	73,294	23,932	33,068	41,795	46.58	54.40	57.02
Malaria	20,644	70,143	99,155	38,400	88,800	16,550	186.01	126.60	16.69
Immunisation	21,765	38,866	69,887	3,576	5,474	9,624	16.43	14.08	13.77
Nutrition	1,161	1,602	1,760	898	1,128	1,028	77.35	70.41	58.41
Tuberculosis	7,086	7,786	33,446	4,122	4,436	8,262	58.17	56.97	24.70
Leprosy	9,169	11,838	14,663	7,473	8,437	9,233	81.50	71.27	62.97
Health education	627	1,059	909	N.A.	645	252	0.00	60.91	27.72
TOTAL	2,03,331	2,82,109	4,14,526	1,42,516	2,10,722	1,77,744	70.09	74.70	42.88

Source: *Country Health Profile*, 1988.

2) *Efficiency*: Inadequate coverage, underutilisation and lack of an outreach component are not so much a reflection of deficient policies but of deficient management. The current policies relating to primary health care are adequate and appropriate, while the management of the various health programmes and projects does not reflect these policies. It is extremely weak in terms of motivation, training and supervision of manpower, and proper implementation of adequate physical infrastructure.

Before turning in depth to the efficiency of the government's planning and management of health services, there are a number of structural constraints in Nepal's political and cultural arena which mitigate against an easy solution to these managerial problems:

- geography: inadequate communication facilities affect supplies, cost of services, movement of trained manpower, frequency of supervision and access to health care;
- social factors: the power of patronage — connections of family, caste and locality — dominates access to employment, promotions and transfers for individuals and to resources for communities;
- bureaucratic factors: as elsewhere, government service provides secure employment and is highly sought after. The rigid hierarchical system fits the patron-client relationship by which access to the service is often gained. Although there is little disincentive for poor performance, individual action is carefully assessed in terms of accepted norms and stepping out of line is

perceived as risky;

- low expectations of the people (accountability): less than two decades ago, the government was regarded mainly as an instrument of revenue collection and law and order. People do not expect much from public service and demands for better performance are constrained by such social factors as mentioned above. As a result there is no accountability.

A major shortcoming in the managerial health process is the fact that once a policy has been set, it is translated directly into targets and numbers with little attention to planning how these targets and numbers will be met or can be met at all. For example, an infant mortality rate of 45 per 1,000 live births by 2001, when it is currently little over 106, and 1,450 physicians by the year 1991, an increase of about 65 per cent or 571 additional physicians in just one year (to put this in perspective — the number of physicians in Nepal today is 879 and the current output of the Institute of Medicine stands at about 25 to 30 physicians per annum) are unreachable and unrealistic targets. When it becomes obvious that the targets will not be met, rather than being made more realistic they are made even more ambitious in order to demonstrate the political support for the BNP policy. This in turn leads to frustration on the part of those responsible for implementation, who begin to see the planning process as irrelevant to their work or become chronically disillusioned and indifferent.

3) *Decentralisation*: The effect of decentralisation down to the district level has been limited. In

view of the fact that budgeting remains highly centralised, there is little incentive to planning and decision-making responsibilities. Even if budgeting and financial control were to be delegated, effective decentralisation would not ensue as the mechanisms for the District Public Health Offices to exercise such control remain vague and unspecified. One of the prerequisites for making decentralised planning a reality is a sound decentralised health management information system.

4) *Integration*: The policy of integration assumes that efficiency gains can be achieved by combining the service activities of the various projects. While this seems logical, no data exists to substantiate this. More immediately, integration is often perceived as a threat by long-term project staff who

may have to face unemployment due to their 'temporary' status.

Although integration of services has supposedly been completed, the vertical programmes remain largely independent with their own budgets, staff and bureaucratic imperatives. The process of integration of the vertical programmes remains unresolved. There is, however, the danger that the effectiveness of the established vertical programmes might be diluted by integration and the dedicated programme staff will be unprepared to deliver the amalgamation of services expected of them.

However, the government is now accelerating the process of integration, with some success, but a number of issues still remain to be resolved.

6.

Action Areas for NGOs in the Field of Health

As mentioned in the previous chapters, access to health services is hindered both by cost and by the weaknesses of the health care system itself. Many issues relating to health care delivery are outlined in the previous chapter particularly concerning effectiveness, efficiency, decentralisation and integration. These will not be resolved quickly and overcoming them will be a long and slow process involving subtle improvements in service delivery. The point that needs to be emphasised is that the health status of the people can be improved without necessarily relying on strengthening institutional health services alone. The government should by all means continue upgrading health services — but given the institutional barriers involved and lack of effective access to the health services by the poor and underprivileged, the focus should shift to non-medical interventions. And in this endeavour, the government should involve NGOs intimately as they can definitely play a very vital role.

Again, as many of the major health and nutritional problems discussed in Chapter 4 are strongly correlated with poverty and underdevelopment, the *greatest health impact* will come not from health and medical interventions *per se*, but from non-health measures like safe water supply, improved hygiene and improved nutrition through increased food security¹ (improved access to food) and better feeding practices. One of the most useful interventions would be in the area of female education. For the poor and the underprivileged of Nepal, the government should focus on a sub-set

of simple health interventions like immunisation, oral rehydration, diarrhoeal disease management and micro-nutrient supplementation which do not rely on improvements in health service delivery.

Though the government is making some efforts to meet the major health needs of the population, as mentioned before, there are many areas, particularly certain social dimensions of health, which are grossly neglected or unrecognised in these efforts. In fact, it is this contribution that can be considered most significant to the primary health care movement. These dimensions include:

- links with the socio-political process;
- commitment to individual and community awareness building and generation of greater autonomy;
- emphasis on a demystified educational process as a crucial component;
- process of 'community building' including increasing the participation of those who do not/cannot participate at present;
- quest for medical pluralism;
- acceptance of conflicts of interest within the community;
- confrontation of various factors in the medical model of health care, including over-medicalisation of health, over-professionalisation of skills and knowledge and over-emphasis on the physical dimension of health;
- increasing commitment to accountability and medical audit.

NGOs can no doubt play a vital role in the neglected areas, but their role should be primarily

¹ However, in a broader sense, a strategy to improve food security in Nepal needs to revolve around improving agricultural productivity and physical accessibility, and increasing incomes.

to supplement and complement the government's efforts. To be specific, the focus of NGO activities in the health field should be on minimising risk factors which involves:

- conservation of a healthy environment and potable water supply;
- improvement of nutritional status and prevention of deficiency disorders/diseases:
 - educate pregnant and lactating mothers about iodine, vitamin A, iron deficiency disorders as also supply micro-nutrients;
- maternal health care -- antenatal, natal and post-natal care;
 - education on maternal nutrition;
 - supply of micro-nutrients to pregnant mothers;
 - protection with tetanus toxoid;
 - screening of high-risk pregnancies;
 - care during pregnancy and lactation;
 - training local village women to conduct low-risk deliveries;
- infant and child health care, immunisation, nutrition, control of diarrhoeal diseases and control of acute respiratory infections:
 - identification and priority care of high-risk infants;
 - promotion of breast-feeding and weaning practices;
 - vitamin A prophylaxis;
- family planning, spacing of births;
- communication, information and education on health (including increasing utilisation).

The NGOs can play a major role in the area of water and sanitation as well. Their role should not be restricted to providing water and sanitary facilities to the community, but also to make people aware about the greater implications of such problems and motivate them to use and maintain these facilities. The specific role of the NGOs in this

regard should focus on the following areas:

- educate people -- motivators and the community -- about safe water and sanitation;
- advocate use of safe water and sanitation as a way of life and means to improve health and achieve a better quality of life;
- make water and sanitation an integrated part of any development activity;
- train local people to maintain/repair these facilities;
- organise training/orientation courses at various levels directly relevant to the programmes of water and sanitation;
- produce health education materials in local/regional languages to promote awareness among people about water and sanitation.

The involvement of local community organisations and NGOs is essential to ensure a high level of immunisation coverage and a low drop-out rate. The major role of the voluntary sector in this regard will be in social mobilisation to urge parents to accept immunisation for their children.

The NGOs can also play a role in controlling iodine deficiency disorders by conducting communication campaigns on the benefits of iodated salt.

Furthermore, NGOs have a role to play in making health services accountable to the people. Experiences in other countries have shown that NGOs can help create a demand for the health services provided by the government to ensure better utilisation of available facilities and services. They can also mobilise demand for adequate staff at health institutions, particularly the health posts, regular supply of drugs and vaccines, health information materials, and quality services.

Thus, NGOs must be involved both in programme implementation and in raising issues and creating demands.

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